ISSN 0704-3716

Canadian Translation of Fisheries and Aquatic Sciences

No. 5246 (Revised)

Strategy for marketing Norwegian consumer herring

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Original title: Strategi for markedsforing av norsk konsumsild

In: Fiskeriteknologisk Forskningsinstitutt Rapp. 674-7-1, 91 p., 1985

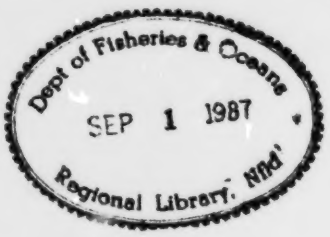
Original language: Norwegian

Available from:
Canada Institute for Scientific and Technical Information
National Research Council
Ottawa, Ontario, Canada K1A 0S2

1987

93 typescript pages

90-02716/



STRATEGY FOR MARKETING NORWEGIAN CONSUMER HERRING

Ove Osland, Roger Richardsen, and Terje Vassdal
Tromsø: September 1985
Institute of Fishery Technology Research

Report No. 674-7-1
Confidentiality: Open.

Translated from the Norwegian

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For: DFO Regional Library, Newfoundland

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[For the Norwegian Industrial Bank & The District Development Fund]

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ABSTRACT

The Report reviews the structure of the industry today, and important limiting conditions for the Norwegian consumer herring business. The situation of the industry in relation to important competitor countries is discussed, as well as relations to existing and new markets. Finally, perils and possibilities are discussed, touching diverse strategies for marketing Norwegian consumer herring.

In addition to the main report presented here

Strategy, Economy.

FORWARD

This report marks the conclusion of our analysis of the strategy Norway should choose for regaining control of the consumer herring market. The work has been jointly **funded** by the Norwegian Industrial Bank and the Districts Development Fund, and jointly **executed** by FTFI [Institute of Fishery Technology Research] in Tromsø and IØI [Research Institute for Fisheries Technology] in Bergen jointly. This is the first time FTFI and IØI have co-operated on a project. The experience has been positive.

As support in this work, the project has had a consulting panel consisting of especially qualified persons from the herring industry, as well as from the funding institutions. The consulting panel is of course not responsible for either the analysis or the conclusions of the Report. We have importuned a great many persons in addition, both at home and abroad. They are all to be thanked for the important help they have given.

As background for this Report we have worked out several memoranda which go into greater detail on special topics, such as industrial structure, special markets, the state of the resources globally, and product analyses for the Norwegian industry. An overview of these working memoranda is appended. They are distributed by FTFI, Tromsø, and IØI, Bergen.

Tromsø, 10th September 1985

Terje Vassdal,
Principal Investigator

STRATEGY FOR MARKETING NORWEGIAN CONSUMER HERRING

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STRATEGY FOR MARKETING NORWEGIAN CONSUMER HERRING

Chapter 1: Introduction

The Norwegian Spring-spawning part of the Atlanto-Scandinavian herring stock was severely overfished at the close of the 1960s. From 1967 to 1968 our catches of winter herring were reduced by more than 90%, and from 1971 there was a complete ban on the winter herring fishery.

Thus there has long been a ban in Norway on catching winter herring. From the close of the 1970s a limited fishery for "fat herring" has been permitted in North Norway. Fat herring is the same fish as the Norwegian Spring-spawning herring — it is called "fat herring" before it matures sexually.

The winter herring fishery was first re-opened in 1984, but with a limited quota of 20,000 tonnes. We estimate that altogether about 40,000 tonnes of Norwegian Spring-spawning herring is now fished each year.

The consequence has been that for a long time Norway has been away from the big herring markets, excepting only for a little fat herring and some North Sea herring for human consumption. During this time changes have occurred in the markets. Canada, for one thing, has entered the European market with herring taken on its Atlantic coast. The pattern of the fishery in the North Sea has also changed, while the East European countries have for the most part based their consumption of herring on their own catches in the Baltic. The pattern of trade has changed, and so have eating habits and market preferences for particular herring products.

Herring has to a certain extent been replaced by other fish species, especially mackerel. It is not clear whether this is owing to the meagre supply of herring or expresses a longterm trend. It is easy to see that there also has been a shift in the demand curves for several herring products, especially salt herring. Disribution of salt herring on several big markets has fallen without any rise in price.

The prices for fresh herring have fallen in real terms in recent years. It could therefore be rather costly to establish ourselves as one of the dominating suppliers of consumer herring to the European market.

In the midst of all this, the Norwegian Spring-spawning herring is in strong growth, and around 1987-88 we should see a distinct increase in fry stocks. This gives us the basis for a considerably bigger harvesting than today's. Meanwhile it is to be hoped that the increase in catches which can be expected will go so far as feasible to consumer applications

Whether herring is to be allocated to reduction or consumption is in the end an economic question. But before we can answer it we need a good deal of information in the marketing field. We have to know what kind of products can be sold, and on what markets. We have to know what our competitors are planning, the basis for their calculations, and the development of the resources they will be fishing. We must obtain information on which fish products herring competes with, both as to price and as to taste, and how well herring competes with other foods. The channels of distribution should be laid out clearly, so we know whether we are exporting to our own competitors or selling to the final customer. The degree of concentration on the part of buyers will decide how Norwegian exporters ought to organize, etc. Also the situation of the Norwegian producer ought to be laid out clearly. Can we produce at the same costs of production as our competitors — or is the size of our plants and distance to the markets a stumbling block?

In building up the Norwegian consumer sector for herring there are a number of unanswered questions. What we are most concerned with depends on what perspective we are taking. Those involved in administrative and planning work have another view of the problems than those who work in the financial institutions, who in turn see other problems than the producers and exporters.

A private person who would like to start up in the production of consumer herring will often be dependent on public financing. The judgements which fisheries authorities and District Development Funds make of the industry's potential are not always in agreement with the judgements private investors make. In this report we try to put forward information which will prove useful to various interest groups.

In the report we discuss **strategies** for extending markets for consumer herring. Thus it is not enough to describe the herring markets today or balance sheets for Norwegian herring producers. We intend to recommend how Norwegian plants ought to position themselves on the

market, what marketing and distribution schemes they should choose, and what choices must be taken to reach the structure envisioned. To analyse such an industrial strategy we have selected a definite analytical model. We therefore briefly explain the analytical model we have utilized. Once the model and the ideas behind it are understood, it will be easier to comprehend and follow the chapter outline we have chosen.

Our analytical scheme can be presented under five points, and may well be depicted as in the following figure:[1]

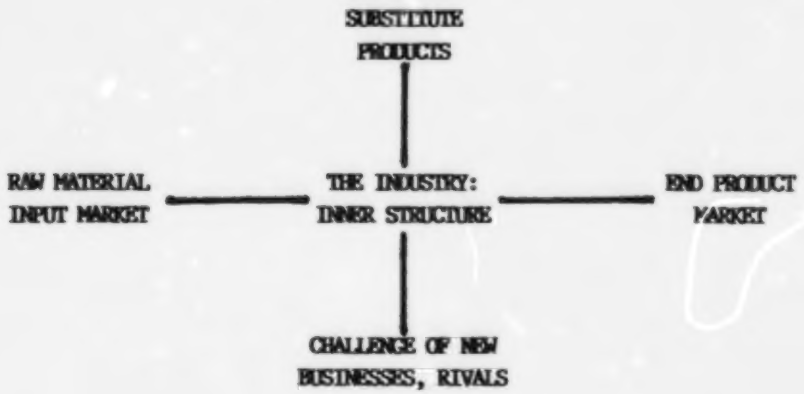


Figure 1: Analytical scheme for strategic assessments

An analysis of the supplier/raw material side is offered in Chapter 3. By this is meant a clarification of resources and harvest possibilities among the countries which show a net surplus of herring, and therefore behave on the world market as suppliers. Special weight is put on presenting data on the biological conditions of fish resources: Is there a dependable resource, is the current catch approximated to the sustainable yield, is the stock in a growth phase, is the stock harvested in the spawning season or over the full year, etc.

---

[1] See the book **Competitive Strategy** by M. Porter. The fRee Press/Macmillan, New York, 1980.

In Chapter 4 the internal conditions of the industry are taken up. The organization of initial sales and possibilities for "forward" or "backward" integration are analysed. Finally a brief overview is offered of production costs for a number of Norway's main herring products.

The markets for herring are treated in Chapter 5. In this chapter we have systematically reviewed the markets in West Europe, East Europe, Japan, and other markets. In Europe our special emphasis is on setting out the difficulties in reaching markets inside EEC from Norway. A condition to which we have given special attention is the fact that many countries which are major importers of herring, simultaneously re-export much of the herring they import.

In Chapters 6 and 7 we try to bring the analyses together. Chapter 7 is accordingly the chapter which pulls together the threads of earlier chapters, and where we attempt a grounded analysis of the various strategies open. This chapter thus ends with conclusions, which are the findings and recommendations we have worked out as participants in the project. It may be that many in the industry will disagree with us. We would hope in that case that any disagreements would in fact lead to further constructive discussion and a positive development for the industry. We will presumably never again get back the same type of industry we had in the 1950s and 1960s. The best we can hope for is an industry so profitable that it will grow to assume the same dominating position in the Norwegian fisheries that the processing of herring used to have.

Chapter 2: Industrial Structure and possible courses of action in the consumer herring business

In this chapter we try to assess to what degree the structure of the industry determines what action the industry (or sections of it) must undertake to improve its position as supplier of consumer herring products. This chapter is based primarily on the description of the firms which was offered in Working Paper Nr. 75 from IØI [Bergen], as well as the questionnaire study which was summarized in an IØI Note of March 1985.

Structure really means "make-up" and designates "a system of relations among different parts of a whole"[1], here the consumer herring industry. The parts may be particular undertakings, plants, employees, etc. They can be described by structural characteristics such as marketing, location, age, etc. The relation among parts, i.e. the structure, is described by comparing the structural characteristics of the parts. One may also distinguish between physical-economic structure and political-organizational structure[2].

Structural conditions set limits upon, and contribute to the direction of, the firms´ and the industry´s behaviour. It is especially in the short run that structure has great significance. In this project until now we have emphasized the description of important structural conditions both internal to the industry and on the side of the suppliers and the markets. Now we focus on the limitations and possible courses of action associated with those structural conditions we have discovered, in order to see these in light of anticipated changes on the supply side.

The more central structural conditions can be listed under three main headings each of which offers a perspective on possible courses of action for the industry. These are:

<1> Degree of concentration of the industry.
<2> Product differentiation and types of market.
<3> Marketing conditions.

We discuss structural relationships under these main headings.

---

[1] Cf. Hope et al. 1978.

[2] Cf. Berrefjord 1976, 1978.

2.1 Degree of concentration in the consumer herring industry

Of major significance for the firms' marketing behaviour is the concentration of production and resources, whether organizationally or geographically. Important highlights for a structural profile are thus:

<a> Size of the concern, i.e. the concentration of herring quantities put on the retail market.

<b> Product specialization, i.e. degree of concentration on a few products.

<c> Production factors, i.e. concentration of raw materials, employees, production equipment, and other resources.

<d> Localization, i.e. the spatial concentration of production.

<e> Ownership conditions, i.e. the concentration of decision-making authority in the industry.

Starting with these structural characteristics we can describe the structure of concentration in the industry.

<a> The barely 150 concerns which at this point in time are selling herring at retail are mainly small. Just a few concerns are large and dominate the marketing.

TABLE 1:
FIRMS GROUPED BY HERRING QUANTITIES SOLD
1984 (27-11)

CLASS (hl.)	No. of firms	% of total	% of amount sold
1-1000	74	51	3.2
1001-2500	30	21	8.5
2501-5000	14	10	9.3
5001-10000	11	8	14.2
10001-20000	9	6	21.6
over 20000	6	4	43.3
TOTALS:	**144**	**100**	**100.0**

Source: Sales associations

The table shows that 10% of the concerns sold 65% of the herring in 1984, while 51%, i.e. the smallest, sold only 3.2%. A greater part of

the sales are accordingly concentrated in just a few, large firms. Compared to conditions in other countries, the degree of concentration emerges nevertheless as moderate. A country like Denmark has all consumer herring processing in just a few concerns each of which is considerably larger than the largest Norwegian firms.

<b> Few concerns produce only herring. But those which have herring as their only product or as their main one are all among the larger in herring marketing. Most concerns market a varied selection of fish products, with herring products as a minor part. The product spectrum for herring is dominated by just a few products, namely frozen herring round and filleted (19%) and salt herring (19%). Fresh and frozen herring must be regarded as half-processed. There is only a small output of final herring products in Norway. Most herring is exported, with further processing taking place in other countries.

<c> The input of raw material is concentrated in three herring varieties, most of which are taken by net. Fat herring dominates at about half the market (1984), while winter herring and North Sea herring have scarcely a quarter-share each. The share of winter herring is increasing.

We are dealing with an industry with a typical small-firm profile where there are in addition just a few large concerns which together employ a significant share of the labour force, approximately one third. Part-time work is much in use among half the firms. Firms in urban areas find their labour supply "not unproblematic".

When it comes to production equipment this seems to be less concentrated than marketing in just a few firms. The most important exception is freezer equipment, where the largest firms dominate, measured by freezer storage space and deep-freezing capacity. This lower concentration can be seen in relation to the fact that most herring is not processed in the traditional sense, but merely sorted, packed, and sent further, whether fresh or frozen. To do this, what is basically needed is people, packaging materials, and freezing equipment. Nevertheless there is a trend underway toward substituting capital for labour, i.e. using production equipment wherever possible, for example in sorting. In addition, many firms are trying to make efficient use of offal.

A resource which seems to be in short supply for most firms is competence in product development and marketing. The firms are simply too small to be able to invest resources in this area. Further, the questionnaire study showed that there tends to be ignorance in the firms concerning market prospects for their products. This has a negative impact on motivation. Only a few firms are large enough to manage any investment in foreign marketing on their own. However it must be added that a good deal of competence is to be found in Norway outside the firms. Development of products and production methods is being pursued by FTFI, and competence in marketing is to be found, for example, in the sales associations directly concerned in market development for consumer herring.

<d> Consumer herring firms lie spread along the coast from Stavanger to Troms. But several regional concentrations emerge, as measured by quantities sold. Primarily this applies to Stavanger, the Bergen region, Maalöy, the Aalesund region, Kristiansund-Averöy, and Lofoten (Vaagen). In these places the firms are located so near one another that a direct form of co-operation on both buying and production-and-marketing would be feasible. Table 2 shows the distribution of concerns by county.

The table shows as well that the majority of firms with extensive markets lie in southern Norway. The geographic distribution of quantities marketed is shown in Figure 2.

We have further found that most fresh herring is marketed on Maalöy and the Möre coast, most frozen herring is marketed in southern Norway, while herring for salting is produced for the most part (two thirds) in North Norway. Figures 3 and 4 show the marketing by township for respectively fresh herring and herring for salting.

We have discovered a further relationship between localization, herring type, application, and firm size. To make the point as clearly as possible, we may outline the following ideal types: North Norwegian herring firms use fat herring for salting and are small with a minor, seasonal market share for herring. The biggest and most

Figure 2: Herring marketed in 1984. Total amounts in hl. by township.

Figure 3: Fresh herring marketed in 1984. Total hl./ township

Figure 4: Herring for salting in 1984. Total hl. by township.

Table 2:
Firms with sales of herring for human consumption
Total over 5,000 hl./ over 10,000 hl.
1984 (27-11)
By county

County	T	% of all	>5,000 hl. No.	>5,000 hl. % of T	>10,000 hl. No.	>10,000 hl. % of T
Rogaland	8	6	2	25	2	25
Hordaland	6	4	3	50	2	33
Sogn & Fjordane	9	6	4	44	4	44
Möre & Romsdal	37	26	9	24	5	14
Sör-Tröndelag	9	6	3	33	2	22
Nord-Tröndelag	5	3	0	0	0	0
Nordland	50	35	5	10	0	0
Troms	16	11	0	0	0	0
Other counties	4	3	0	0	0	0
TOTALS:	**144**	**100%**	**27**		**15**	
Located in towns:[3]			**12**		**9**	

Data source: Sales associations.

modern herring firms are in Maaløy, which is a leading milieu in Norway with marketing throughout the year. All herring types are marketed here in quantity, primarily fresh and frozen. Möre and Romsdal county has a more eclectic collection of firms. But several are large, not only with respect to herring, and will presumably be able to escalate herring marketing in future. Florö, the Bergen region, and Stavanger have just a few, but significant, herring exporters.

<e> Most firms are privately owned. If we set aside canneries where a single company, Norway Foods, owns most of the plants, there are few owners who have more than one plant. In most cases it is also the owner who manages the plant. Few plants are owned by larger

[3] Towns include Stavanger, Haugesund, Bergen, Florö, Vaagsöy, (Maaløy), AAlesund, Molde, Kristiansund (N), Trondheim, Bodö, Harstad, and Tromsö.

concerns running other operations in the industry. This means that no single plant owner has authority based on ownership to make decisions which will have broad consequences for the whole industry.

The agencies which have the greatest decision-making authority with respect to development of the branch are primarily the government, through regulation of the fishery and export laws; next the sales associations which direct marketing of herring in the first instance; and the organizations connected to this branch, which are involved in setting in motion management initiatives on the part of authorities in the marketplace.

To summarize a number of important concentration parameters in the industry, we can say that there are clear connections among concentrations of important structural features such as marketing, product description, production factors, and localization. The picture of just a few large and many small entities is recurrent. But as purveyor to the international market, all the small units have small possibilities for influence. Seen as a nation, on the other hand, we are in the process of becoming large.

With such a structure co-operative strategies will give advantages of scale in a number of areas. By getting together, firms would get greater bargaining power as suppliers. They could establish marketing as a specialized function, with the increased competence this would bring. They could insure more even sales and production, and make better use of transport facilities, freezer capacities, etc. A number of gains can be sketched out.

Co-operation among firms could take many forms. We do not argue here for any preconceived form, merely suggesting possibilities. They might be complete merger or informal co-operation on particular jobs. The co-operation might be horizontal, i.e. between similar concerns, or vertical, i.e. with firms further along the chain of processing and sales. There might be voluntary groupings of firms or full centralization for one function, for example sales on export markets. One form of co-operation which appears to have certain advantages would be building on regional concentrations of plants such as we outlined under point (d) above. This offers obvious advantages for buying as well as for efficient use of production capacities, use of waste products, transportation, and marketing.

A development of co-operation among firms demands maturation of the firms and is hence a time-consuming process. It is a task for agencies at the industry level to try to encourage this process.

2.2 Product differentiation and market types in the consumer herring industry

The marketing of consumer herring by Norwegian firms is dominated by half-processed, that is fresh and frozen, round herring and fillets. The only finished product which is produced in quantity is salt herring, and part of this goes to further processing (in Sweden). As finished products herring may be produced in many variations. Consumption habits with respect to herring are partly culturally conditioned and vary from country to country. This may be deemed a contributing cause for the fact that further processing of herring often takes place in recipient countries.

The markets for the most common herring products may be recapitulated in a single display:

	Fresh & Frozen		Salt		
	Round	Fillet	Round	Fillet	Smoked
Industrial West					
Consumer retail	xxx	xxx	xxx		xxx
Further processing	xxx	xxx	xxx	xxx	
East Europe					
Consumer retail		xxx	xxx		
Further processing					
Third World					
Consumer retail			xxx		xxx
Further processing					

Figure 5: Product types and markets for distribution of consumer herring

In our description of the industry structure we found that production of salt herring took place typically in smaller plants in North Norway while fresh and frozen herring almost exclusively were sold through larger southern-Norwegian firms. The figure shows that the two product types compete in somewhat different markets. Fresh and frozen herring go to a group of countries which, across the board, pay better than the markets for salt herring. On the other hand, a great deal of fresh and frozen herring goes to further processing while salt herring mainly goes directly to retail, at least if we set aside the Western Industrialized countries.

From the questionnaire study we know that trading is undertaken by Norwegian firms with exporters and foreign dealers, and some with foreign processing plants as well. The exception here is East Europe where all sales go through Norwegian Fresh and Frozen Herring Ltd. On all markets Norway has been relatively small in recent years, while we are now on our way to being big again.

When it comes to market and competition patterns for the different products we find distinct profiles:

In exports to other Industrialized countries the several Norwegian exporters are small. There is price competition in a market with an oversupply of herring. Other competition factors are minimum quality standards, ability to deliver, and packaging. On the whole, the Norwegian firms earn enough to keep going. With a future increase in the herring fishery in Norway there is a chance to change the conditions of competition somewhat. Norwegian firms will then for a period of the year be at peak ability to deliver high-quality goods. Nationally, Norway will be a major seller of herring. At that point it may be profitable for Norwegian firms to do joint planning of exports. That could give a lot more leverage in these markets.

In exports to East Europe today we have the situation that Norway in reality deals on the national level through given firms. The recipient countries also deal on the national level. Competition is pretty well limited to price. This is so low that Norwegian firms have earnings problems. If we succeed in coming low enough in price, industry people nevertheless claim there is a chance to sell large quantities of herring to the East Block. The strategy must then be to attempt to reach sufficiently good economies of scale in production and distribution. With an ample supply of herring in the foreseeable

future one would also have to count on paying less for herring from the primary producer. If the alternative for the fisherman is to deliver the same herring for reduction, that would give us a base of calculation. Whether conditions will justify sales on a large scale is for now impossible to say. A favourable result will depend in any event on close co-operation between the state, export organizations, and the sales associations.

Exports to Underdeveloped countries entail mainly salt herring (Africa, Latin America, Mid-East) and some smoked herring to Caribbean countries. This seems to be a shrinking market. In the meantime it is reported that several Arab countries may be interested in increased imports, but special quality demands have until now made this difficult. Given that Norwegian salt herring export firms are resource-poor to begin with, and in addition have only a small portion of herring in their total sales, a continued decline in this trade seems to be in prospect.

2.3 Conditions for readjustment in the consumer herring industry

To meet fresh challenges and improve the industry's competitive position in the sales market for consumer herring, the climate of change is important — i.e. conditions for making readjustments in the plants and the industry. Among important structural conditions which create a good climate for restructuring we discuss the following:

<a> Motivation for making adjustments
<b> Technological structure
<c> Capital structure
<d> Institutional barriers and facilities

<a> To be motivated one must first have a good enough overview to identify threats and opportunities in the industry. Important fields for such overview are: 1) the most important components of cost; 2) marketing and pricing trends for the various herring products; 3) the most important competitive elements for firms (price, quality, ability to deliver, etc.); 4) new herring products. The questionnaire study showed that the level of information in these fields is deplorable, even though there are some exceptions. Larger firms have generally superior resources. But to be able to work systematically in marketing the firms must be big enough to have an administration with

specialists in such important fields as production management and marketing. This is the case for only a few of the firms in the industry. The conclusion must therefore be drawn that the firms need practical help in such forms as information brokerage and efforts to develop the motivation to make the most of any possibilities the industry offers.

<b> By technological structure we here mean the distribution of competence as regards product development and production processes for consumer herring.

There seems to be ample competence among the firms in the traditional production areas. Demands here are for that matter relatively modest. But where one is concerned with developing new products and production processes little is happening among the small firms, and this goes for many of the larger firms as well, though with exceptions. The low level of technological competence among the firms must be seen in relation to the plant´s traditional role as handler of half-manufactured and raw materials for foreign processing plants, a role which a majority of plants presumably will have in the foreseeable future. The business of searching for new products and developing new methods of production breaks radically with earlier patterns of operation and demands a new kind of knowledge. That is why it seems clear that if we want to strengthen the processing of herring in Norway, with the consequent increase of accumulated value, the work of development should not be left to the firms alone.

<c> We have a limited overview of the capital structure in the industry. As already mentioned, most firms are independent and privately owned, the majority as limited liability companies. A review of the books for some larger plants indicates reasonably good profitability and substantial reliability. As for finance capital the firms describe the availability as good. A majority of plants are so situated as to have the opportunity of Local Development support and tax reduction in conformity with District Taxation law. Accordingly we gather that capital is not a critical problem as long as there are worthy projects under way. What the industry milieu seems to have more use for is investors with a vision of marketing potentials. A thought worth discussion is the possibility of linking up professional industrial investors with the best product developers and some smart marketing people with an eye to a bolder effort at establishing new markets. There are in spite of everything very large quantities of

winter herring anticipated for the coming year. A timely project might, for example, be herring products which could exploit the so-called "diet consciousness" in USA and elsewhere. One Norwegian firm is for that matter already busy establishing itself in USA in co-operation with a Norwegian shrimp producer.

<d> Trade in consumer herring is not a free activity. The marketing initially is managed through the sales associations, some products require export licensing, some recipient countries (EEC) periodically put duties on herring products, some countries (among others, Japan, the East Block) have import quotas on herring. Additionally, catch quotas are set for herring through negotiations with other countries which are also customers. And the authorities regulate how large a portion of the herring catches are to be devoted to human consumption. All in all, this shows that the government in the foreseeable future will be an important agent in assuring the industry its basic limiting conditions, in particular access to raw materials and important markets for Norwegian herring. This means once more that the branch must accomplish some lasting and consequential work to make sure the relevant authorities have knowledge and understanding of the industry's needs and potentials. This is strategy on the industry level. It requires that the industry be as well consolidated as possible and look to its own interests vis-à-vis the authorities.

But help from governments is not restricted to setting limiting conditions on the market side. We have already mentioned help with product development and production technology. Norway has a long tradition in the primary economic sector, especially agriculture, as regards such development combined with extensive **advisory services.** Given that competence in production- and product-development is what it is, it becomes important to maintain systematic co-operation with these institutions. They are quite simply there to be used. Furthermore, experience from most research communities will show that they must be built up to a certain size to be genuinely beneficial.

Chapter 3: Potential new producers

To get an overview of future herring supplies for the consumer market we must review the facts concerning stocks of the various herring types. This, together with an analysis of which countries will be our main future competitors, is the aim of this chapter. Stock conditions for the world's herring resources are further examined in detail in a separate working paper.

The situation at the beginning of the 1980s was that several of the main stocks were in growth after a shorter or longer period of overfishing. This pertains primarily to the Atlanto-Scandinavian and the North Sea herring. But there are stocks in the Pacific as well, which the Soviets, Japan, Canada, and USA have overfished. For several stocks in the Pacific, for that matter, there is no sign of rapid recovery.

Such changes in resource availability will naturally also contribute to changing trade channels for consumer herring. For example, a progressively growing stock in the North Sea will lead to a steadily growing degree of self-sufficiency within the EEC market, while the development in parts of the Pacific may have decisive significance for West European distribution to existing and potential markets in the East, particularly Japan.

3.1 Norwegian Spring-spawning herring

The history of Norwegian Spring-spawning herring is as old as the history of the coast itself. For a long time herring was the biggest fishery we had in Norway. In 1954, the peak year for the Norwegian herring fishery, Norwegian ships caught 1.5 million tonnes, and this comprized fully 77% of the total Norwegian fishery. How things have gone since then is well known but may be worth quickly recapitulating — in Figure 6.

Figure 6: Development of the spawning stock of Norwegian Spring-spawning herring in the 1950—1985 period.

Source: Resource survey 1985. **Fish & Sea**, Bergen.

At the close of the 1960s the mature stock of Norwegian Spring-spawning herring was, so to speak, fished out. A small portion of the 1969 year class survived as young herring and spawned for the first time in 1973, mainly in Lofoten.

Until the 1983 year class, the intervening year-groups were very weak. As can be seen from Table 3, 1983 was a very rich spawning season. The 1984 year class seems to be well above average for the past decade.

The rich 1983 year class, which moreover is confirmed to be doing very well as year-1 herring, means that we can anticipate a substantial growth in the spawning stock from 1987. ICES has accordingly recommended increasing quotas from 38,000 tonnes in 1984 to 50,000 tonnes for 1985. Norway has announced a national quota of 660,000 hectoliters (61,400 tonnes) for 1985.

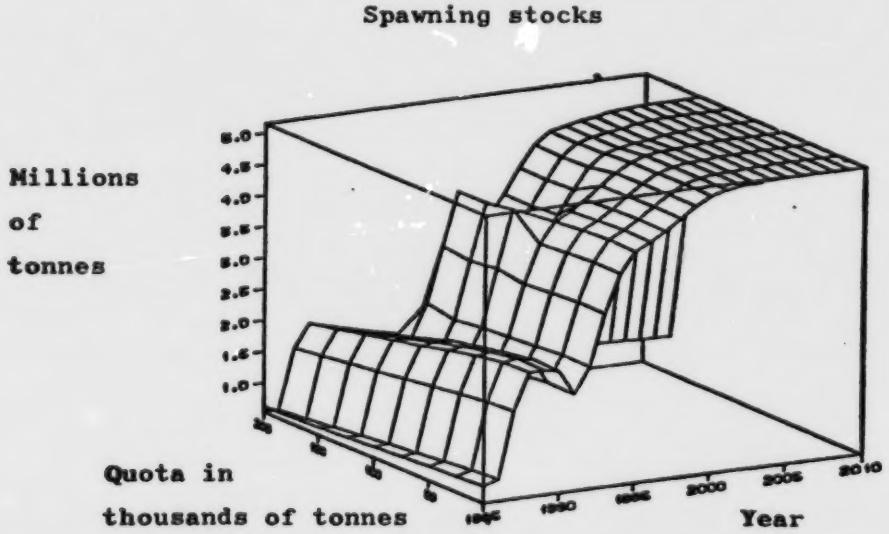
Table 3:
Zero-year herring: selected areas & total 1975—1984
(numbers in millions)

Year	Møre & Trøndelag	Nordland	Troms & Finnmark	Barents Sea	Total
1975	328	692	55	-	1075
1976	415	2610	750	-	1075
1977	70	305	37	-	3775
1978	302	511	392	-	1205
1979	909	2260	288	-	3457
1980	12	4	218	-	234
1981	263	2	1	-	265
1982	64	571	2301	-	2936
1983	323	4543	8864	35700	49430
1984*				{5000}	{8000}

*1984 figures represent early approximations

Source: "Resource overview for 1985" in Fish & Sea Sp. No. 1, 1985

Figure 7 pictures growth in the stocks given varying quotas in 1985. What appears is that the stocks, and the potential catches, will increase sharply from 1990-1991, always on the premise that the quotas



Source: S. Kristmannson: **Economic analysis of harvesting Norwegian Spring-spawning herring.** FIFI Report, Fall 1985.

for the next few years will not exceed 150-160,000 tonnes. A series of premises on which these calculations are based will not be further discussed here. For further detail on this point see the relevant FIFI Report.[1] This shows that it is now only a few years before we can harvest Norwegian Spring-spawning herring on a scale which clearly will exceed the quantity we can expect to market as consumer products.

3.2 Herring in the North Sea

The size of herring stocks in the North Sea has a decisive meaning for Norway's marketing potential for consumer herring. This has to do with the fact that most EEC countries take their own catches from the North Sea, and a growing supply of herring from this area will clearly limit the need for imports.

Table 4:
Total North Sea catch 1974—1984 by countries

Country	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984*
Belgium	603	2,451	2,451	57	-	-	-	-	9,700	5,969	5,080
Denmark	61,728	115,616	34,841	12,769	4,359	10,546	4,431	21,146	67,851	90,468	38,777
Faroe Islands	26,161[1]	25,854	14,378	8,078	40	10	-	-	-	-	-
Finland	-	-	1,034	-	-	-	-	-	-	-	-
France	12,548	20,391	14,468	1,613	2,119	2,560	5,527	15,099	15,310	16,353	20,320
German Dem.Rep.	3,268	2,689	2,624	2	-	-	-	-	-	-	-
Germany,Fed.Rep.	12,470	6,953	1,654	221	24	10	147	2,300[2]	349[2]	1,837	12,092
Iceland	29,017	16,286	9,412	-	-	-	-	-	-	-	-
Netherlands	35,106	38,416	20,146	4,134	18	-	909	7,700	22,300	40,045	45,665
Norway	40,975	34,183	27,386	4,065	1,189	3,617	2,165	70	680	32,512	96,250
Poland	9,850	7,069	7,072	2	-	-	-	-	-	-	-
Sweden	3,561	6,858	4,777	3,616	-	-	-	-	-	284	884
UK (England)	5,699	6,475	9,662	3,224	2,843	2,253	77	303	3,730	111	1,622
UK(Scotland)[3]	15,034	8,904	15,015	8,159	437	-	610	45	1,780	17,260	27,234
USSR	18,096	20,653	10,935	78	4	162	-	-	-	-	-
Total North Sea	275,116	312,798	174,834	46,010	11,033	19,158	13,466	46,663	122,056	133,794	247,924
Total including unallocated catches						25,148	60,994	140,972	235,925	317,124	317,263

Source: ICES (Int. Council for the Exploration of the Sea)
Report of the Herring assessment working group for the area south of 62°N. CM 1985/Assess:12.

[1] Kristmannsson, S.: Economic analysis of harvesting Spring-spawning herring. FIFI Report 1985 (in Norwegian).

As will be seen from Table 4, the official catches from the North Sea have risen sharply in recent years. Only from 1983 to 1984 the increase was wholly 110 thousand tonnes. But the real take of North Sea herring has been substantially higher than officially reported catches, because many year-0 and year-1 herring are taken as a bye-catch in other fisheries. The total figures, including unallocated catches, indicate an order of magnitude for the total harvest as calculated by ICES working groups. Altogether the harvest has plainly exceeded the TAC recommended by ocean scientists. In 1985 we expect there will be about 400,000 tonnes taken from the North Sea.

Despite the high level of harvesting, ICES reports for 1985 show that the spawning stocks in central and northerly parts of the North Sea will increase considerably. The spawning stock will grow further in 1986 and 1987. This is owing to very strong year classes in 1981 and 1982, and recruitment to the stocks in central and northerly parts of the North Sea seems further assured, in that the index for the 1983 year class is the highest on record. It is for example 40% higher than the 1969 year class, which until now has been the best.

Stocks in the southerly parts of the North Sea and in the Channel (Downs stock) lack the same positive growth. EEC has set a TAC of 90,000 in 1985 for this area. By comparison in 1984 there were 46,000 tonnes taken in the same area. From ICES comes a warning, moreover, against such a heavy harvesting level, with the indication that this will lead to reduction of the spawning stocks (and catches of mature herring) in the near future.

To sum up the growth of North Sea stocks we present the following synopsis of the historical and anticipated catch of mature herring:

Table 5:
Synopsis for mature herring

	1983	1984	1985*	1986*	1987*
Central & Northern North Sea		226,899	300,000	527,000	580,000
Southern North Sea & Channel		45,902	90,000	70,000	50,000
Total North Sea	**133,794**	**272,801**	**390,000**	**597,000**	**630,000**

*Predictions based on repetition of 1984 harvesting level.

Source: ICES: CM 1985/Assess:12

3.3 Other stocks around the British Isles

Several minor stocks around the British Isles have significance as well for the total offerings of herring to market. Examples are herring from the Celtic Sea, herring west of Scotland, Clyde herring, and herring in the Irish Sea.

For several of these stocks as well there was a total breakdown in the latter part of the 1970s, though recruitment since then has picked up a bit.

Table 6:
Recent and expected catches
Herring stocks around the British Isles 1981—1987
(in tonnes)

	1980	1981	1982	1983	1984	1985	1986
Celtic Sea	9,253	[illegible],835	9,501	22,187	19,718	15,000	18,000
W/ Scotland	306	51,420	92,360	63,523	74,285	56,000	68,000
Clyde	2,081	2,135	2,506	2,803	3,238	3,000	4,500
W/ Ireland	30,124	24,922	19,206	33,019	27,400	20,000	30,000
Irish Sea	10,613	4,377	4,855	3,933	4,066	5,000	5,500
Totals:	**52,377**	**99,689**	**128,431**	**125,465**	**128,707**	**99,000**	**126,000**

Source: Reworked from ICES Report. CM. 1985/Assess: 12

Total catches have been constant over recent years. Overall for the near future we must anticipate that landed quantities will be on the order of magnitude of 120-130,000 tonnes.

Naturally enough it is the Irish fleet which takes the greater portion of the catches, but fleets from Great Britain, France, and the Netherlands also have quota in these area. Norway expects to get a quota of 5,000 tonnes (west of 4° W. Longitude) as currently.

3.4 Herring in the Skagerrak/Kattegat

There are major problems in getting reliable data on catches for this area because a good deal of herring is taken as bye-catches of major fisheries. Much of the young herring belongs to the North Sea stock, and some is presumed also to recruit to mature stocks in the southerly Baltic. Fishing young herring in the Skagerrak and Kattegatt consequently reduces recruitment to the mature North Sea stocks.

The recommended quota for 1984 was 30-40,000 tonnes (as in 1983), but Norway, Sweden, and the EEC commission could not agree on joint administration, and the recommended quota was drastically overfished. In total about 200,000 tonnes was caught in 1983 and 1984.

For catches of mature herring in the Skagerrak the recommended quota is between 60-80,000 tonnes. Norway, Sweden, and EEC have nonetheless agreed on a total quota of 117,000 tonnes whereof Norway is allocated 17,000 tonnes.

3.5 Herring near Iceland

There is no sign that the Icelandic Spring-spawning herring stock is recovering. In 1984 the harvest was exclusively (99.5%) based on Summer-spawning herring.

There has been a steady take from stocks in recent years. In 1984 the harvest was optimal in relation to the TAC recommended by ocean scientists. This suggests a measure of growth in the spawning stock which in turn can mean increased catches. We should anticipate catches around 55-60,000 tonnes for the near future.

Table 7:
Icelandic catch of Summer-spawning herring 1980—1984
(thousands of tonnes)

	1980	1981	1982	1983	1984	1985*	1986*
Catch	53.3	39.5	56.5	58.7	50.0	55.0	60.0
TAC	-	42.5	50.0	52.5	50.0	55.0	60.0

3.6 Herring in the Baltic

Catches in the Baltic Sea have been steady or weakly increasing from 1975-1983. In 1983 479,000 tonnes were landed from the entire area.

It appears from the statistics that the Soviets take about 100,000 tonnes, Sweden and Finland about 90,000 tonnes each, Poland 80,000 tonnes, Denmark and East Germany about 50,000 tonnes while West Germany takes the comparatively modest quantity of something under 10,000 tonnes.

For most Baltic stocks it seems that the situation for the near future will be fairly stable. However, the situation in southerly parts of the Baltic — that is, where Denmark, East Germany, and Poland fish— is bad enough that total landings ought to be reduced if the fry biomass in the area is not to fall dangerously low in 1985. The 1983 year class was good in the same area, but this will have no significance before 1986. From this area about 110,000 tonnes are landed, and recommendations are for reducing catches by at least 20%.

Overall for the Baltic Sea we should anticipate catches at about the same level as currently, between 450-470,000 tonnes.

3.7 Canadian herring resources

Table 8:
Canadian herring catches 1980—1984
(values in thousands of Canadian dollars/ tonne)

	ATLANTIC		PACIFIC	
	Tonnes	Value	Tonnes	Value
1980	176,900	241.2	25,300	1151.0
1981	151,000	165.2	17,600	795.0
1982	147,250	189.5	28,594	1111.9
1983	142,454	164.3	38,000	1163.1
1984	113,383	151.8	33,379	n.a.

Sources: Fisheries & Oceans Canada. For 1984 (Atlantic tonnage): Eurofish Report 2003/85: Agra Europe, London. For 1984 (Pacific tonnage): 1985 Yearbook, **Pacific Fishing.**

Canada has been a significant participant in the European herring markets. The resources have been over-harvested and the total catches declined from 330,000 tonnes in 1978 to 150,000 tonnes in 1983.

Catches on the Canadian East Coast have receded steadily through the whole period. According to the Canadian Fisheries minister, John Fraser, the quotas for the East Coast will be stay at the 1984 level (that is, around 110,000 tonnes) in the near future.

On the Canadian Pacific Coast the quotas are reduced 30% from 1984 to 1985, so that total quotas on the Canadian West Coast in 1985 are set at 20,274 tonnes.

It is difficult to forecast later developments, but we should anticipate comparatively low catches in the near future, because recruitment to stocks has also been poor in recent years.

The whole quantity of Pacific herring goes to roe production, i.e. the quotas in 1985 will yield about 2,000 tonnes of roe this year. The herring itself is ground up or thrown out.

3.8 American herring resources

Table 9:
American landings of herring 1981—1984
(values in thousands of US dollars/ tonne)*

	ATLANTIC		PACIFIC	
	Tonnes	Value	Tonnes	Value
1981	63,102	120.8	48,950	468.2
1982	33,094	113.0	58,661	539.0
1983	23,252	117.1	58,621	703.3
1984	33,468	111.2	47,511	466.4

* In the original, values are (mis)labeled "US$/tonn" [Translator].

Source: Fisheries of the United States. U.S. Dept. of Commerce.

Most of the catches on the East Coast are taken in the Gulf of Maine, where much is taken as 2-year-old herring and used for "Maine Sardines" (in competition with Norwegian canners). The catches in 1984 were 33,500 tonnes, while the average for the five preceding years was 53,500 tonnes.

In the Gulf of Maine we believe there is the potential to harvest an annual yield of 20,000 tonnes of immature herring, and 25,000 tonnes of mature herring. The Georges Bank stocks have been fished out. If this stock should recover and regain its former level, it is conceivable that total catches of Atlantic herring could reach 100,000 tonnes.

The biggest Pacific fishery takes place in Bristol Bay (roe herring for Japan), off the southeastern coast of Alaska, and from California to Washington state. Bristol Bay and the coast off southeastern Alaska have the potential for increased landings, but the American biologists have set a very "conservative" estimate of 29,000 tonnes from the entire Pacific coast in the coming years.

The average for the last five years 1979-1983 is around 50,000 tonnes. But on the American West Coast the stocks are also influenced by the warm current El Niño. As a result there has been poor recruitment to several stocks.

The quotas in 1985 for the West Coast are set to between 40-47,000 tonnes, against a catch of 45,000 tonnes in 1984. Just about all Pacific herring go to roe exports, which in 1985 meant a roe quantity from USA of approximately 4,500 tonnes.

Chapter 4: The industry seen in relation to input factors

4.1 Organization of initial sales

The initial marketing of herring takes place either between the Fat Herring Fishermen's Sales Association, Trondheim; or Norway's Herring Sales Association, Bergen. The latter markets all Winter herring. In addition this Association markets herring sold between Stad[1] and the Swedish border, and herring landed on foreign soil by vessels hailing from Norway's Herring Sales Association's district.

The herring sales associations act on behalf of the fishermen, and are intended to secure them optimal terms of sale, given existing customer- and market conditions. Prices for initial sales are set by the herring associations after negotiations with the buyers. If the parties do not agree through negotiation, the herring associations have the right in accordance with the Raw Fish laws to undertake the final pricing decision. It is only minimum prices for the different size classes which are decided in advance. The buyers make their bids in competition with one another and the sales associations sell to the highest bidder. In 1980 the sales associations had to abandon their minimum prices, reducing them for a period of the year when the market was particularly poor.

It should be noted that herring is sold today through an auction system, in the same way that it is done in most other European countries. But the Norwegian auction system differs as to one point: Norwegian herring producers buy the raw material unseen, i.e. they bid on catches while they are still on board the fishing vessel — not in a central auction locale such as (for example) in Denmark and West Germany. For the producers this can be a stumbling block, for example when the raw material proves to be of inferior quality (including size) to that presupposed in the bidding price. Prearranged sales in such case can prove difficult to fulfill in timely fashion.

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[1] Stad is a promontory on Norway's west coast, near 62° N. Latitude. [Translator]

In parallel with the Norwegian minimal-price system, all other European countries have a minimal-price system which insures the fishermen against an uncontrolled drop in prices.

Since most herring is exported, initial sales prices are quite important for profitability levels in the industry, and thus for competitive edge on the market. The initial sales prices make up between 60-80% of a firm's direct costs for the most common product types. The smaller the value added to the product, the greater the significance the initial sales price will have for costs.

There was a steady decline in average initial sales prices from 1979 to 1983. The initial sales prices in Norway have dropped about 46% in the period while the market prices for 3 main products for importing to West Germany have fallen between 33% and 38%.

Overall there seem to be no special features of the organization of initial sales which should indicate the Norwegian consumer herring industry will fare adversely in relation to the nations which are our main competitors.

4.2 The quality of the raw material: equipment, method of catch, technical problems

The quality of the raw material has pivotal significance for the quality of the product. This is taken for granted within the food industry as a whole, and high quality is a key factor for the success or failure of each industry and plant. Not least does this apply to Norwegian consumer herring. The production of barrel-salted herring has declined, and in West Europe it will never return to old levels. Instead, export has been dominated by fresh herring and frozen herring of a high grade of freshness. This turn of the market means there is an advantage in having short distances from fishing grounds to processing plant, and also an advantage in chilling the catch on board. On both these grounds the Norwegian industry will have advantages over its competitors.

Norwegian consumer herring has traditionally had a reputation for quality on the markets. Much of this has come, to be sure, "gratis" on account of size, texture of the meat, fat content, and the like, and thus is connected with biological conditions, and not so much with treatment

of the product. As we now once more are moving into a leading position among nations as harvesters of herring, the overall quality image we manage to give Norwegian consumer herring will be of decisive significance if we want to market these quantities.

The quality can never be improved on land if it is once reduced in the circumstances of harvesting. In recent years this problem has been far from trivial as a result of a greatly varied fleet structure. Large parts of the fleet are unprepared for this fishery, and a good deal of "know-how" must be re-learned after many years' absence. Such "costs of starting up" must be expected, but as a strategy for the future it is particularly important to go in for steady improvement of quality. With herring available in close proximity to the coast, and a large and modern purse-seine fleet, it would seem we have all it takes to give Norwegian consumer herring a quality advantage in competition with other countries.

Herring deteriorates very easily. Under unfavourable storage conditions after harvesting, herring can become unsuited for human consumption in a few hours. Because of a high fat content, herring easily goes rancid, even in freezer storage. This sets definite requirements for freezer storage and deep-freezing equipment. Norwegian cold storage plants are very good, however. This, too, can be a competitive advantage in a tight market.

Norwegian Spring-spawning herring has a fat percentage of 20-22% in the autumn, falling to 11-12% when the herring comes in to the coast to spawn in February-March. After spawning it becomes even thinner before it begins its feeding season in the Spring. For strong salting the high fat content is only an advantage, while for spice-salting herring is preferred which is not so large and fat. For filleting the fat content means little. Large portions of the German processing industry have no special preferences with respect to the fat content of the raw material. On the other hand, size counts for much. In the German processing industry large herring (1-5 pcs. per kg.) cover about half of the raw material needs. The remainder are small herring which for the most part are used in the marinade industry. For this application the fat content must fall between a minimum of 8% and a maximum of 15-16%, and much Baltic herring is accordingly used in this production. When it comes to "matie herring" Norwegian Spring-spawning herring has little promise as raw material, in any event until we have access to fat herring of 5-8 pcs. per kg. Note that the traditional fat

herring fishery comes rather late in relation to the usual peak season for matie herring in the Netherlands and West Germany in June-July.

As concerns production, the size of Norwegian Spring-spawning herring offers some advantages over especially North Sea and Baltic herring. Production goes faster and will therefore come a bit cheaper. Only a few markets have, for that matter, really special preferences for large herring. This applies mainly to a market for the Swedish, Finnish (and Norwegian) canning industry, and a small sale direct to the consumer in Sweden and Finland. For smoking large herring are also used, but overall this involves a rather small quantity. Total Norwegian exports of smoked herring are about 600 tonnes annually.

In the period Norwegian large herring has been off the market, the processing industry in Denmark and West Germany has turned to smaller herring from Skagerrak/Kattegat and the Baltic. Packaging sizes and labels are adapted to this herring, and the consumers have become accustomed to a particular size of fillets.

As a result of this it is clear that Norwegian herring will not automatically enter the market on the sole ground of being "Norwegian" herring. As a strategy for taking a larger portion of the market every effort must accordingly be made to maintain a high quality standard for the raw material at each step. If the Norwegian consumer herring industry holds a steadily high quality standard, out-doing competitor nations, there will continue to be the potential for taking back the market share we have lost.

The Norwegian consumer herring industry has good technological and environmental possibilities for maintaining a high and steady quality standard, out-doing the major competitor nations. The almost fantastic growth of exports of frozen consumer herring to Japan is an example of this. The exports to Japan set quality demands which were formerly unknown for frozen herring. The sharp quality demands to which we have adapted on this market have had a disciplining effect on the Norwegian exporter. We should be able to profit from this on other markets as well.

Another quality demand is sorting by size. Everything indicates that Norwegian exporters in this area are not right up to scratch compared to our foreign competitors. It must be a part of the quality strategy that we also understand size sorting as a quality parameter.

4.3 Production on board

Gradually as the fleet has steadily been modernized and made more efficient, steadily more participants have seen possibilities for increasing ships´ earnings by processing raw material on board, in other words, "skipping over" the production plants on land. The first were factory ships for filleting cod, while the same problematic has become steadily more practical for the seining fleet as well (freezing capelin and capelin roe production). On-board production of herring has also arrived, with a number of seiners starting such production in the 1984 season. It is mainly the freezing of round herring which is being done now, and especially Winter herring for the Japanese market, requiring completely fresh quality. But roe production will be technically possible to achieve, and even fillet production will not be out of the question for the bigger ships. For example, 27 Dutch ships are carrying on exclusively on-board production of herring, round-frozen and fillets, and they are ever on the ready to "dump" cheap herring on the market. Much of the explanation for this is to be found, of course, in the fact that the Dutch herring fishery has rather consistently broken all quota agreements.

It is doubtful that on-board production of herring will attain such dimensions in Norway that we see **direct competition for raw material**. Especially with the expected growth in stocks of Norwegian Spring-spawning herring this will be no problem. It is mainly on the **market side** there will be an impact. The ships must sell their products in competition with land-based industry, and here problems can easily come up as soon as the market no longer allows expansion.

As long as there is a pressured market situation, as now, we do not believe on-board production of herring will attain a particularly notable scale. The profit margins are too small for that. And the Norwegian seining fleet (in contrast to other countries´ herring fleets) has both more harvesting alternatives (capelin, mackerel, blue whiting) and more application possibilities (reduction to animal feed/ specialty meals).

4.4 Klondiking

This concept is used for "over-the-rail sales" to foreign factory ships which wait around the fishing grounds and buy direct from the fishing fleet. The word is used in English, and "Klondiking" of herring has especially broad scope in Great Britain (Scotland) and off the Canadian coast. It is without exception East European countries which pursue this form of direct trading.

In Norway we have examples of this activity with direct delivery of both saithe and herring. There were, for example, deliveries of 1,883 tonnes of North Sea herring made directly to Russian factory ships. The Russians were interested in much more, but mainly on account of low prices (NOK 1.25/ kg.) the actual deliveries were considerably less than the quantity agreed.

It is possible to link such "over-the-rail sales" firmly to ordinary sales to the respective countries. There are examples of this in Canada, where Klondiking is linked to sales of salt herring produced by the land-based industry. Such a strategy ought also to be possible for Norway, and would be of special interest to the salt herring industry in North Norway. The Soviet Union should receive a limited access to direct deliveries both in South and in North Norway, against buying salt herring in addition from North Norway. As we see it, a greater share of the East European market would be pivotal for a development of a herring industry of real scope in North Norway. On account of distance, it will be almost impossible for North-Norwegian producers to compete with South Norwegian rivals on the continent, especially for frozen and fresh products.

4.5 Deliveries direct to foreign countries

Such deliveries have special timeliness for Norwegian quotas of North Sea herring and herring in the Skagerrak, delivered to Denmark. In 1984 there were 5,578 tonnes sold to Denmark (price NOK 1.33/ kg.), while 162 tonnes were delivered for meal and oil in Great Britain. For the fleet such deliveries can offer real advantages (shorter transportation lines, better price, etc.), while for the land-based industry there will be some disadvantages: the Norwegian retail industry can be left sitting without raw material, or the supply of herring can be reduced so far that auction prices for direct sales are maintained at an artificially high

level in Norway. But perhaps most important is the fact that herring delivered from Norwegian ships to the consumer markets of EEC countries is recorded under imports from third countries, and as such is included in the duty-free quota of herring to EEC. As earlier mentioned, this quota grows steadily smaller as EEC becomes self-sufficient for herring. If such direct deliveries become steadily bigger in scope, and if in addition this takes place during the dutiable period (15 June—14 March) this could easily have negative consequences for the competitive ability of the Norwegian herring industry on those same markets.

4.6 Production costs

We have tried to reckon direct costs for a number of main herring products for export. The calculations are based on an initial sales price of NOK 170.-/ hl., which is actually higher than we can expect as a normal price in future. In addition to the costs included in the tables below, the following costs would have to be covered:

- Selling costs to the firms
- Transportation costs
- Export taxes
- Duties and other import taxes
- Insurance during transport

Table 10:
Direct costs and sales prices for selected herring products [1984]*
(based on cost of NOK 170.-/ hl.)

	Direct costs	f.o.b. &	c.i.f. prices
Fresh round	2.52	2.37	3.02
Frozen round	2.72	2.00	2.65
Fresh ´fillets´	3.99	3.83	4.48
Japan ´layers´	3.27	5.50-6.00	
Heavy salt, head off	4.50	6.69	

* Prices for fresh round, frozen round, and fresh ´fillets´ are calculated on the basis of mean West German prices for 1984.

The table shows that prices in West Europe are already under such pressure that major problems may arise in achieving profitability for these products. On the other hand there should be good margins in the production of Japanese herring, and to an extent also in salt herring production. Profitability for those plants which have produced Japanese herring has, all the same, been notably reduced in relation to our calculations, because the prices for raw material in the event have been higher than those we used as a base of calculation.

In conclusion we would say that prices for the important EEC market will scrape profitability margins to the bone in the Norwegian consumer herring industry, unless raw material prices in Norway go down drastically. What has probably "saved" the economy in the consumer herring industry has been the upward curve of Japan as a new market, paying well.

Chapter 5: The Market Situation

The scourge of the Norwegian fishery is that we have so small a domestic market. This holds for the fishery as a whole and not least for the herring fishery. The fact that we fall at the bottom of the scale in Scandinavia with respect to **per capita** consumption of herring (1.3 kg./person) puts sharp demands upon the Norwegian industry's ability to compete on foreign markets.

In what follows we briefly review dimensions and development trends for the most important markets in Norwegian consumer herring. In the main the discussion will be of Western Europe, East Europe, and Japan; but other potential markets will also be briefly treated, for example USA, South Korea, and China. Detailed surveys can be found in our special reports on markets, available as separate supplements.

5.1 Markets for herring within EEC

5.1.1 General

EEC will be treated in what follows as a single market, where developments in the catch, consumption, prices, and the like, are being treated on a general level. This is because several EEC countries are quite important markets for Norwegian herring, and because the European Economic Community aspires to behave as a single unit in external trade both in matters of resource management and in forming any partnerships.

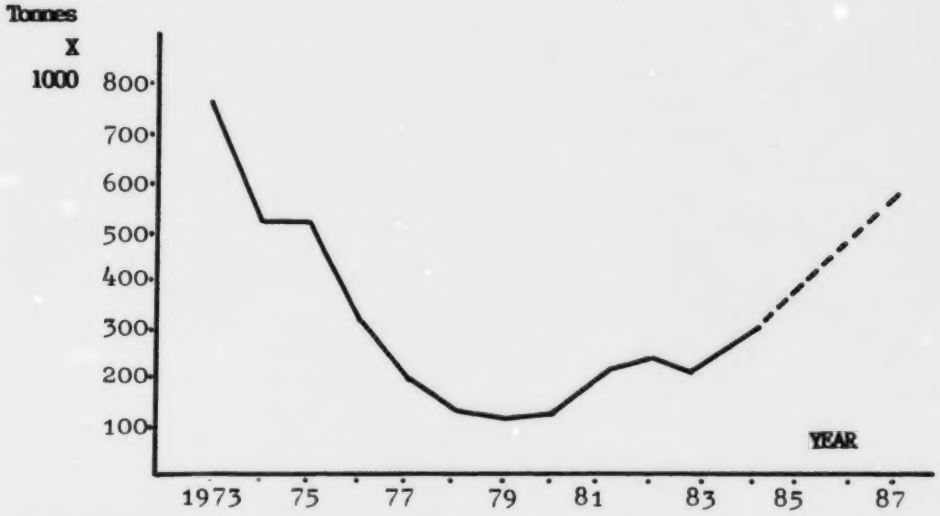
EEC is also interesting because different countries have differing conceptions as to how the union should handle its fisheries policy, including import restrictions with respect to third countries. Which points of view win out may have decisive significance for Norway's export possibilities.

In this section we are primarily interested in discussing the general features of EEC as a market, leaving it for the supplementary reports to give a more specialised run-through of the most significant individual countries within EEC.

5.1.2 Harvesting trends within EEC

Owing to overfishing, EEC experienced in the same way as Norway a strong decline in the resource base from the latter half of the 1970s forward to 1980-81, when stocks began to recover. In particular, the total prohibition of harvesting in the North Sea was noteworthy for EEC's supply situation for herring. But also several stocks around Great Britain and in the Channel were badly decimated in approximately the same time period, with wide-reaching consequences in several areas to which we shall be coming back.

Figure 8:
Total herring catches (live weight)
For EEC countries: 1973-1984.



Projections for 1984-1987 are based on EEC's own forecasts of harvesting trends.

It should be clear from the figure how considerable a reduction in catches the EEC countries have experienced in the most recent ten-year period. From a level of nearly 800,000 tonnes in 1973 the supply declines to about 120,000 tonnes in 1979-80. After the introduction of a total ban from February 1977 in the North Sea, the stocks recovered well. At the New Year 1984-85 it is estimated that the North Sea stock will be about 900,000 tons. As well, other herring stocks in EEC waters have

enjoyed good increments in recent years, and from Figure 8 one may note that the expected yield for EEC countries will again rise considerably in the next few years. In particular one should note that this increase occurs in parallel with, or at the leading edge of, the increase in stocks of Norwegian Spring-spawning herring.

5.1.3 Trends in herring imports to EEC

With the exception of cod, imports of herring comprize a greater volume than that of any other species of fish imported by EEC. It is estimated that EEC in 1983 was about 55% self-sufficient in herring, and it follows that about 45% of consumption in these countries was based on imports from third countries. The trend in relations between "domestic" and imported supplies has had a decisive significance for herring markets in recent years. In the period 1978-83 EEC's **official** harvests were more than doubled, from 108,000 tonnes to 230,000 tonnes, with the greater part of the increase after 1981 when the North Sea fishery was re-opened. But the increase in catches was surely a good deal higher than officially reported, as it is generally known that considerable quantities of illegal and unreported herring are also brought to market in several Continental countries.

Table 11:
EEC imports and catches recalculated as live weight.
Thousands of tonnes.

	1978	1979	1980	1981	1982	1983
Imports: fresh & frozen	216.7	217.0	213.2	178.4	168.6	175.5
Imports: other herring	33.4	30.4	21.8	12.4	10.0	7.5
TOTAL HERRING IMPORTS	250.1	247.4	235.0	190.8	178.6	183.1
OFFICIAL LANDINGS	108.3	99.3	113.6	178.5	225.0	230.4
TOTAL SUPPLY	358.4	346.7	348.6	369.3	403.6	413.5

As can be seen from the table above, imports of herring by EEC declined in the 1978-83 period from 250,000 tonnes to 183,000 tonnes reckoned in live weight. The decline in imports (67,000 tonnes) was nevertheless smaller than the increase in EEC's catches (122,000 tonnes). As a consequence of this, it may be seen that the total supplies of herring increased to about 414,000 tonnes in 1983. Against the

background of expected increases in EEC's own catches, together with increased stocks of herring off the Norwegian coast, it appears there will be ample supplies of herring in relation to current consumption levels inside EEC.

In addition to changes in the supply situation within EEC, there have been significant changes in respect to which third countries export to EEC. In the period of strong declines in their own catches in the latter half of the 1970s, the European Common Market became highly dependent on importing **frozen** herring (mainly 'fillets') from Canada and USA. In 1978 the imports of frozen herring were on the order of 65,000 tonnes. Owing to increased own-catches, but also because (among others) Denmark and West Germany began importing fresh herring from the Baltic, the imports of frozen herring from North America fell to about 9,000 tonnes in 1983. By comparison, imports of **fresh** herring from Sweden and Norway increased from 66,000 tonnes in 1978 to 106,000 tonnes in 1983. The greater part of this was the flow of Swedish Baltic herring (88% in 1980). Imports from Sweden held steady in quantity (around 60,000 tonnes) while Norway has expanded significantly in recent years. Norway's portion of fresh herring to EEC rose for example from 4% in 1980 (3,700 tonnes) to 16% in 1982 (16,300 tonnes), 26% in 1983 (29,700 tonnes). This includes direct landings in Denmark.

In 1983 Norway exported 13,300 tonnes of fresh herring (live weight) to EEC countries, while by 1984 this had increased to 17,200 tonnes (+29%). It is worth noting that exports to EEC comprized **98%** of all exports of fresh herring. Only Austria and Sweden outside EEC are listed in the statistics as recipients of fresh herring from Norway.

5.1.4 Market trends in EEC

A key factor in the weak herring markets has been failing demand in central North-European countries, most particularly West Germany. West Germany alone consumes something over 200,000 tonnes (live weight) and this comprizes about 60% of the total consumption within EEC. The decline of herring consumption in West Germany started as a reaction to steadily rising prices at the close of the 1970s. This trend was steadily strengthened by changes in traditional eating habits, and by the fact that cheaper substitute products made headway against herring on the markets — especially canned **mackerel** and **pilchards**. Even a sharp decline in prices from 1980, together with a significant marketing effort

from the German processing industry, have not succeeded in restoring markets to the old level. Nevertheless, signs have appeared recently of better markets for canned and marinated herring in West Germany. While herring in tomato sauce still constitutes the greater part of the sales, new recipes have been developed for sauces suited to particular ethnic groups. This has worked out well.

In the course of 1984 we have also been able to note gratifying results from the campaign of the Sea Fish Industry Authorities (SFIA) to increase consumption of fresh herring and kippers in Great Britain.

In France we have seen consumption of light-salted fillets rising in relation to other consumer varieties, and particularly at the cost of smoked herring. The same phenomenon seems to be happening in the Netherlands.

5.1.5 Price trends

A combination of weak demand and increased supplies has led to a persistent decline in prices for raw materials, i.e., fresh whole herring and fresh and frozen herring ´fillets´. A clear indication of the scope of this decline is shown in the price trends of the German market for the period 1978-1984.

Table 12:
Mean prices for imported fresh and frozen herring
Delivered in West Germany (DM/ kg.)

Herring types:	1978	1979	1980	1981	1982	1983	1984	% change: 1978-1984
Fresh (round)	1.56	1.60	1.40	1.27	1.08	1.02	1.04	- 33.3%
Fresh (´fillets´)	2.50	2.26	2.27	2.04	1.91	1.75	1.54	- 38.4%
Frozen (´fillets´)	2.42	2.03	2.06	1.82	1.96	1.80	1.61	- 33.5%

Source: Hamburg: Bundesverbandes der Deutchen Fischindustrie und des Fischgrosshandels.

The table shows that the price decline in the period was considerable — between 33% and 38% for the three kinds of raw material. If prices are recalculated so as to eliminate the effects of inflation,

the price decline is all the greater. We should also expect further downward pressure on these prices in the near future, even though the prices for fresh round herring were about the same in 1984 as in 1983. The lowest mean price for fresh round herring was DM 0.92 pr. kg. (May 1984), DM 1.35 (October 1984) for fresh 'fillets' and DM 1.52 for frozen 'fillets' (June 1984).

Frozen whole herring is poorly paid compared to whole fresh herring. This is clearly connected with increased access to fresh raw materials, indicating that frozen wares may only be a supplement in the period when access to fresh herring is limited. Frozen 'fillets' on the other hand are paid on average a bit better than fresh 'fillets'. The difference of DM 0.07 more or less covers the cost of freezing. This trend emerges clearly from the consideration that imports of fresh herring from third countries to EEC increased by 43% (from 70,811 tonnes to 101,477 tonnes in the period 1978-1982) while intra-EEC trade increased by 103% (from 44,690 tonnes to 90,754 tonnes) in the same period. At the same time the imports of frozen herring to EEC dropped noticeably by 67% from 77,202 tonnes in 1978 to 25,272 tonnes in 1982.

5.1.6 EEC's import regulations for herring

With increased volumes of herring, EEC's Customs regulations on imports will have steadily increasing significance for Norway's exports to these countries. The current Customs tariffs and quotas on imports from third countries stem in part from a number of bilateral agreements between EEC and third countries, various GATT-agreements on duties and quotas, and special unilateral EEC rules on duty suspensions or other regulations. An overview of these regulations is given below (Table 14 and Notes).

In general one may see that EEC duties are highest on those herring products which are least frequently imported, that is fresh herring fillets (as against herring 'fillets'), salt herring, and smoked herring. For those product categories where imports from third countries have been greatest, i.e. fresh and frozen round herring and herring 'fillets', there have in practice been no duties levied. For the last-mentioned product categories the period 15th February to 15th June is completely duty-free. This is an obligatory arrangement under GATT. For the rest of the year, i.e. the period 16th June to 14th February, there is in principle a levy of 15%, but this cuts in only after duty-free

quotas are used up. These duty-free quotas comprize a yearly allowance, set under the GATT agreement, of **34,000 tonnes** plus unilateral EEC quotas which are laid down year by year.

Table 13:
Duty-free quotas for fresh & frozen herring, including herring 'fillets' To EEC in the period 1982/83 to 1985/86

	GATT QUOTA	EEC QUOTA	TOTAL
1982/1983	34,000	50,700	84,700
1983/1984	34,000	40,000	74,000
1984/1985	34,000	26,000*	60,000
1985/1986	34,000	10,000#	44,000

* This quota applied to a shorter period, 16.6.84—31.12.84.

This quota was applied to the period 1.1.85—15.2.85. It is currently uncertain whether EEC will grant further remission of duties for the period 16.6.85—31.12.85. If not, the total duty-free quota to EEC in the present period will accordingly be 44,000 tonnes.

These relatively ample duty-free quotas have meant that very few imports have been taxed. For example, only 5% of imports in this category of goods was dutiable in 1983.

Gradually as stocks in both EEC and Norwegian waters have recovered, the downward pressure on prices has increased. Especially for the fishermen and the industry in Great Britain and Ireland these conditions have notably worsened in recent years. These countries are now working hard inside EEC to get severe limits set on the duty-free importation of fresh and frozen herring to EEC. They are countries badly situated for delivering fresh wares to (e.g.) West Germany, and with more effective Customs barriers they hope to bar a good portion of such imports from Norway and Sweden. The price level will then be easier to maintain, while at the same time there will be greater demand for frozen herring. Against this view, the processing industries in Denmark and West Germany take a stand, having transparent interests in obtaining the cheapest possible raw material and an even supply throughout the year. This can only be achieved if trade barriers on imports from third countries are held at minimum levels. Norwegian herring exports can in the meantime be affected as early as the autumn of 1985. Despite the fact that the Danish and German herring industries have taken up the

matter with the EEC Commission, there have been no additional quotas from EEC beyond the GATT quotas of 34,000 tonnes for the period 1985-86. As of today it seems the only way the situation might be relieved is either that EEC be allowed to extend fishing rights in the Norwegian zone, or that Norway ease Customs barriers for agricultural products imported from EEC.

EEC's Customs regulations for herring appear in the tabulation overleaf.

Table 14:
EEC duties on herring 1984

	TOLL RATES	ICELAND	NORWAY	FAROES	CANADA	SWEDEN & OTHER
Fresh/chilled or frozen herring round or cut, including "fillets" 15 Feb—15 June	DUTY FREE under GATT <1>	NO DUTY	NO DUTY	NO DUTY<6>	NO DUTY	NO DUTY
Fresh/chilled or frozen herring round or cut including "fillets" 16 June—14 Feb	15% MAX. DUTY 0 UNDER QUOTAS<2>	15% OR FREE UNDER QUOTA	15% OR FREE UNDER QUOTA<2>	15% OR FREE UNDER QUOTA<2>	15% OR FREE UNDER QUOTA<2>	15% OR FREE UNDER QUOTA
Herring fillets fresh/chilled	18% MAX. DUTY	18%	18%	18%	18%	18%
Herring fillets frozen	15% MAX. DUTY	NO DUTY<3>	3%<3>	3%<3>	15%	15%
Dried/salt/pickled herring round or cut	12% MAX. DUTY	12%	12%	12%	12%	12%
Herring fillets Dried/salt/pickled	16% MAX. DUTY	16%	16%	16%	16%	16%
Smoked herring	10% MAX. DUTY	10%	10%	10%	10%	10%
Breaded herring fillets	15% MAX. DUTY	NO DUTY<3>	3%<3>	3%<3>	15%	15%
Spiced salt herring 10(+) kg. packages	20% MAX. DUTY	10% IN QUOTA	10% IN QUOTA	10% IN QUOTA	10% IN QUOTA	10% IN QUOTA
Herring "fillets" vinegar treated 10(+) kg. packages	20% MAX. DUTY	10%<3>	20%	4%<5>	10%	20%
Other herring prepared/preserved	20% MAX. DUTY	10%<3>	20%	20%	20%	20%

Notes to Table 14

<1> EEC allows fresh/chilled herring, whole or cut & including herring ´fillets´, to be imported between 15 February and 15 June duty-free on a perennial basis, in accordance with the GATT agreement.

<2> In the dutiable period 16 June to 14 February there is remission of duty for a GATT quota of 34,000 tonnes, plus possible further quotas granted by EEC.

<3> Several third countries have special agreements on duties with EEC: cf. Norwegian "Fisheries Letter".

<4> A bilateral agreement between EEC/Canada specifies the duty on marinated herring ´fillets´ at 10% for a quota of 3,000 tonnes in 1982, rising to 7,000 tonnes in 1987.

<5> EEC imports of vinegar-treated herring fillets from the Faroes is set at 4%, except to UK and Denmark where it is nil, and 9% to Ireland.

<6> All Danish imports from the Faroes are duty free. Herring which is sold further to other EEC countries receives special duty rates.

5.2 Norway's position in the EEC market

The countries of EEC have been and are very important for Norwegian exports of herring products. In particular this holds for the export of fresh and frozen round herring and fillets ('fillets'). It is first and foremost West Germany and Denmark which are major buyers of Norwegian herring, but England has also been one of our greatest customers. Salt herring goes only to a limited extent to EEC countries, and for the most part to Denmark. For salt **fat herring** Sweden is our main purchaser.

5.2.1 Fresh herring

We have earlier shown that trade in fresh herring has grown considerably in recent years, improving gradually with supplies of raw materials. Since the processing industry in both Denmark and West Germany prefer fresh raw material to frozen, Norway's ability to deliver the product fresh will be decisive as to what position we actually come to enjoy on the EEC market.

Table 15:
Total trade in fresh herring (EEC internal + third-country imports)
Share in percent delivered from third countries
Norway's relative position among third countries
Quantities in 1000 tonnes.

	1978	1979	1980	1981	1982	1983	1984
Total amount	115.5	136.5	171.8	182.3	192.2	203.3	
Third-country imports (%)	61.3%	61.0%	55.5%	51.0%	52.7%	57.6%	
Norway's exports*	3.7	3.5	3.3	8.4	16.3	29.7	20.0
Norway's share of all third-country imports (%)	5.0%	4.1%	4.6%	9.0%	16.0%	26.0%	

* In absolute figures, including direct deliveries from Norwegian ships.

Norwegian exports of fresh herring to EEC countries picked up nicely from 1981 to 1984. Granted that direct deliveries of North Sea herring to Denmark are included, even excluding these Norway has increased exports both absolutely and relatively.

The biggest exporter of fresh herring is Sweden. In recent years Swedish-caught herring has been delivered to the EEC market in quantities on the order of 80,000 tonnes p.a. Sweden thereby is assured of a decisive influence on this part of the market. The greater part of this herring is at the same time delivered directly to Denmark, 65,000 tonnes in 1983. Furthermore, Sweden is equally as big in West Germany as is Norway (1983), and in 1983 as well Sweden virtually dominated the third-country trade in fresh herring to the Netherlands (5,500 tonnes).

Of others who deliver fresh herring to EEC, only the Faroes and East Germany are significant. These two countries delivered respectively 2,500 and 1,500 tonnes to Denmark (direct) in 1983.

5.2.2 Frozen herring

Trade in frozen herring has a rather complementary development in relation to fresh herring. That is, should the market in fresh herring advance, the market in frozen herring will recede correspondingly.

Marketing of frozen herring has declined from around 100,000 tonnes in 1978 to 50,000 tonnes in 1983. This decline is expected to continue.

Table 16:
Total trade in frozen herring in EEC
Third-country shares
Norway's share of third-country exports to EEC.
Product weight.

	1978	1979	1980	1981	1982	1983	1984
Total amount (X 1000 T.)	105.2	98.8	87.9	74.6	56.8	49.7	
Third-country imports (%)	73.3%	68.7%	64.5%	58.5%	44.5%	44.8%	
Norway: exports (X 1000 T.)	5.0	2.4	0.7	1.1	2.1	4.6	8.1
Norway: share of imports (%)	6.5%	3.5%	1.2%	2.5%	8.3%	20.6%	

The table shows a clear decline in the marketing of frozen herring in and to EEC contries. It appears further that EEC has become less dependent on imports from third countries, albeit this share seems to have stabilized around 45%. Norway has nevertheless bettered its position considerably, by gradual steps as the supply of herring has improved. Both in absolute figures and relative terms major headway has been made since 1981.

In absolute figures Norway has doubled its exports to ECC each year since 1981. In 1984 more than 8,000 tonnes were exported. Internally to EEC it is of course Denmark which here is the biggest supplier. But also Ireland and the Netherlands (both about 7,000 tonnes in 1983) are notable exporters.

Especially for Ireland the export of frozen herring to other EEC countries has had great significance. Because of the long transportation routes they have problems with fresh deliveries to the Continent, and the country reckons Norway as its main rival with respect to the herring processing industry.

Of countries outside EEC there were basically 3 or 4 of significance in 1983 (the last year with complete statistics). Canada (10 k), Iceland (5.5 k), Norway (4.6 k) and Sweden (1.0 k) covered almost all of EEC's import needs. Canada and USA were strongly dominating for EEC in 1978. Together these two countries exported 65,000 tonnes in 1978 (92% of imports from third countries). In 1983 USA fell out completely (240 tonnes), while Canada's exports were reduced to 10,000 tonnes. It must be supposed that Canada's market share will show a further decline over the next few years.

5.2.3 Salt herring

This product category showed a weak but steady decline from 1978 to 1983. Marketing is dominated by internal EEC trading (95%), with the Netherlands and Ireland as the two biggest traders. Canada had an important position among third countries at the close of the 1970s, but is now reduced to less than Norway's level. Of a total import of 1,600 tonnes in 1983 Norway was foremost with 896 tonnes while Canada stood at 594 tonnes. Only smaller quantities were delivered from Sweden (48 tonnes), the Soviet Union (18 tonnes), and Greenland (7 tonnes).

5.2.4 Herring specialty products

Even when it comes to specially prepared herring, the market is dominated by internal EEC trading. This is natural in that third-country importers are subject for the most part to full duties on their products. (Compare sections on duties for EEC, chapter 5.1.6.)

The trade is dominated by the Netherlands and Denmark, while imports from third countries are spread over a series of countries of which Norway and Canada were the two biggest in 1983 (about 450 Tonnes each). Also here Canada has had to suffer considerable declines — from 6,400 tonnes in 1978 to 431 tonnes in 1983.

5.2.5 Smoked herring

Trade volumes of smoked herring are rather small in West Europe as also within EEC. The Netherlands is the biggest exporter, but Great Britain exports a further average 1,000 tonnes p.a. Canada is foremost outside EEC (500 tonnes), while Norway and Iceland only deliver small quantities. Customs conditions here as well set effective barriers to growth in this trade.

5.3 Sweden and Finland

Both Sweden and Finland are important harvesting countries for herring, and have therefore good internal market coverage for most product categories. While Finland exclusively fishes Baltic herring, between 80-90,000 tonnes, Swedish fishermen take herring also in the Skagerrak and Kattegat. For both countries one must include domestic supplies of herring at current levels, that is, for Finland between 80-90 thousand tonnes and for Sweden 100-110 thousand tonnes.

5.3.1 Exports

With a domestic consumption of about 50,000 tonnes, Sweden is also a big exporter of herring. The far greater share goes as fresh or frozen **round** herring to Denmark and West Germany. Rather a lot (about 20,000 tonnes) is landed directly in Danish ports. To this time there

has been little exporting of processed herring, but a considerable filleting capacity is currently under construction. In addition there are several large, established processing plants to be found, which have considerable market shares for consumer packaged wares in Norway, Finland, and elsewhere. The Swedish consumer herring industry will in other words be a **chief competitor** for Norway on the **EEC market**. First and foremost this concerns deliveries of raw materials to the Danish processing industry, but as mentioned earlier under chapter 5.1 much of this herring goes on to West Germany.

Finland exports very little herring in spite of catches which greatly exceed its own consumer needs. Much of the surplus goes to feed. What is exported is sold round at very low prices. In 1983 1,600 tonnes were exported for M 1.25 per kg. This herring goes mainly to the Soviet Union.

5.3.1 Export and import

Table 17:
Swedish imports of herring 1978—1983 in tonnes

	1978	1979	1980	1981	1982	1983
Fresh, round	–	–	–	–	–	–
Fresh/Frozen fillets	–	–	–	–	–	333
Salt/Smoked	5464	6020	6508	4398	4953	4147
Prepared specialties	4552	6870	6394	3732	3397	4180
Total imports	**10016**	**12890**	**12902**	**8130**	**8350**	**8660**

After 1981 imports showed a weak rising tendency, but are still well under the level of 1979/80. The loss altogether is around 33%. Iceland, Canada, Norway, and Denmark have been the most important suppliers of spiced and salted herring. For salt herring it is Norway, Iceland, Canada, and Ireland which have had the biggest shares.

For export possibilities of Norwegian salt herring Sweden is especially important. The two biggest Swedish firms Abba and Foodia purchase a great deal of salt herring for further processing in Sweden (and re-export to, for example, Norway). The country buys unimportant quantities of fresh herring from Norway, and only small quantities of frozen herring.

Developments in Norwegian exports to Sweden are laid out in Table 18.

Table 18:
Norwegian exports of fresh, frozen, & salt herring to Sweden, 1980-1984
Tonnes of product weight

	FRESH		FROZEN		SALT HERRING	
	Round	Fillet	Round	Fillet	Fat herring	Winter/ North Sea
1980	-	-	-	-	1,477	152
1981	-	-	-	-	2,776	247
1982	-	-	-	-	2,324	319
1983	65	329	13	164	2,636	436
1984	106	-	454	-	2,685	518

Source: Bergen: Export Committee for Fresh Herring
Trondheim: Export Committe for Fat Herring

It can be seen that salt herring exports have been rather stable since 1980. A certain annual growth in salt winter herring has occurred, but only of about 100 tonnes p.a.

Norway seems to have taken back a certain market share in recent years, as we have gradually had herring to offer. In 1978 Norwegian salt- and spiced herring only comprized 27% of the total Swedish import market. The corresponding position of Norwegian herring in 1983 was about 37%. This market share is probably taken exclusively from Canada, while Iceland has strengthened its position.

There is little to indicate that Norway can expect a rapid growth in salt herring exports to Sweden at current price levels.

In Finland consumption of Atlantic herring has been greatly reduced from earlier levels. The Finnish packing industry has an annual requirement of about 20,000 tonnes of Atlantic herring for its own production. Of this about 5,000 tonnes are spice-salted and 15,000 tonnes sugar-salted. The main product is snacks in glass (thin herring bits in sweet brine). In addition some varieties of sour herring are canned in glass.

The market was difficult at the start of the 1980s. Prices rose evenly through 1982, while imported quantities dropped. This trend was turned in 1983, with a modest growth in quantity and corresponding decline in price.

A quantity of marinated products in glass are imported to Finland. ABBA has virtually dominated this field, and in 1981 they had a market share of 18% of the total for canned herring. ABBA has been able to compete in price with the Finnish industry because they have used herring from Skagerrak and Kattegat, a raw material which has been decidedly less expensive than the imported Atlantic herring on which the Finnish packing industry has been dependent.

Finland has traditionally been a good market for Norwegian salt and spiced herring. The country has ample access to fresh/frozen herring, with the result that none of these categories are imported from Norway.

Table 19:
Norwegian export of salt herring to Finland 1980-1984
'Fillets' included
Tonnes of product weight

	FAT HERRING	WINTER/ NORTH SEA HERRING
1980	404	504
1981	531	152
1982	787	653
1983	932	1112
1984	648	1056

After major problems for Finnish salt herring buyers in 1981/82 on account of failure in demand and consequent large stocks on hand, the situation has improved a bit, basically because of lower prices. Norwegian exporters encounter sharpened competition from Icelandic herring. Iceland has for instance moved to support the Finnish industry through promotion campaigns. Hearsay has it that this persuaded several major Finnish importers to switch from Norwegian to Icelandic herring. Several central figures in the Norwegian consumer herring business also

aver that internal competition among Norwegian exporters has pressed prices down and reduced export opportunities for Norwegian herring.

5.4 Markets for herring in East Europe

East Europe has for the past three decades tried to be self-sufficient in fish. The goal has been made more difficult since 1976 by the introduction of economic zones extending to 200 nautical miles. As one result, several of the East European countries have found themselves with significantly weakened harvesting bases for traditional fish species, and have had to redirect their fishing efforts toward new resources.

Trade with these countries entails quite special tasks in comparison to trade with Western markets. East Europe is no **market** in the essential meaning of that term. Trade as a rule goes through a central agency organized into sectors; contracts are not easily concluded and **all** available offers are thoroughly evaluated before a final agreement is reached.

Henrik Weisser has sketched the market mechanism in East Europe in the following manner in an interview with the periodical **Norwegian Fishing Industry**:

> Over there they read the 5-year-plan like the Bible itself. Here the pertinent information is given in smallest detail as to what and how much one may plan to produce, who shall eat what, etc. The first question is therefore to find out what Norway has which they may be interested in buying. Next we must be able to barter. What do we sell, what do we buy...
>
> East Europe has no market in the Western sense. Authorities in Norway cannot suddenly order 5,000 tonnes of turkeys and demand to have them sold in the corner grocery stores. That is the sort of thing they can do over there. A signature can be enough for consumption of salt herring to rise by 10,000 tonnes p.a. Herring twice a week. Nothing else is available. Finis. *

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* Henrik H. Weisser, formerly administrative director of W. R. Grace Ltd. in Copenhagen, responsible for the firms sales to Czechoslovakia, Hungary, and Poland.

5.4.1 Soviet Union

The Soviet Union is one of the world's biggest fishery nations. In recent years catches have varied between 9-10 million tonnes in all. Since 1950 catches have quintupled. This has been achieved by building up a huge ocean-going fleet with a correspondingly great floating factory capacity.

The fleet is in position to produce fish by most conventional methods, including canning. One of the most usual production methods in the Soviet Union and on board the ships is salting. For a wide spectrum of fish types, and especially for herring, salting is the most usual method, and will continue as such. In recent years salt products have comprized about 20% of total fish production for the table, and of this in turn salt herring has comprized about 70%.

Despite sharp reductions in their catches the Soviets continue to fish herring in considerable quantities. From 1978 to 1982 the catches lay somewhat over 190,000 tonnes, of which around 100,000 tonnes were taken in the Baltic, the rest in the northwestern Pacific.

Catch failure has resulted in a clear swing to increased imports of fish. These imports tend to be taken from certain European countries, for example Great Britain and Iceland. From Great Britain a lot of mackerel is purchased, while from Iceland it is salt herring, fillets, canned products, and fish meal.

A problem with exporting to the Soviet Union (and East Europe generally) is the country's shortage of foreign exchange funds to make the payments. Much of the trading takes place on that account through "**barter**". Rather than paying with money, the transaction entails delivering other wares — usually fish. These wares can either be sold on the international market or domestically in the purveyor's country. The Soviets may sell those wares they have in surplus or for which there is little interest on their own market, or else especially profitable wares are sold on the international market. An example of the latter would be Russian shrimps sold to Norway and other European countries, or to USA.

To manage these transactions the Soviets have several "joint venture" companies in various parts of the world. For trade with Scandinavia there is a company in Sweden to take charge. The Soviets buy

To manage these transactions the Soviets have several "joint venture" companies in various parts of the world. For trade with Scandinavia there is a company in Sweden to take charge. The Soviets buy considerable quantities of herring, and though we haven't the total figures for recent years, we know that imports from Iceland have grown both in 1983 and 1984 to respectively 18,000 tonnes and 20,000 tonnes. Iceland has further assured a market for its salt herring production in the form of a new trade agreement with the Soviets valid for the next five years (to 1990). The agreement entails that the Soviets annually buy 250,000 tonnes of salt herring and 32,000 tonnes of frozen fish fillets from Iceland, while the Soviets deliver gasoline and tung oil in payment.

Apart from imports from Iceland herring is on the whole delivered "over the rail" to Russian factory ships at low prices. The actual prices which have been realized in selling Norwegian-caught herring in such fashion will illustrate what sort of price level is under discussion here:

Table 20:
Prices and quantities sold to Soviet factory ships

	AMOUNT	NOK/ kg.
1982	5,834	1.57
1983	7,088	1.51
1984	1,675	1.25

There was no other herring delivered to the Soviets from Norway in these years.

The Soviet Union is clearly a market for Norwegian herring, and one which merits putting out a considerable effort to achieve a break-through. According to exporter sources there is great interest at the Soviet import-agent level for Norwegian herring, but the matter must be "escalated" to a higher political level to make the final break-through.

5.4.2 Poland

Demand for fish in Poland has traditionally been concentrated on a small number of species. Chiefly these have been cod and herring. On

account of shortage in foreign exchange and strong international demand the Poles have not been in position to buy cod. In the 1970s, when supplies of herring were cut back due to overfishing, there was a transition from herring to mackerel. Smoked herring has been in part supplanted by smoked mackerel.

But Poland through the whole period maintained a herring fishery in the Baltic, and herring did accordingly maintain a considerable position in the daily diet. Poland was also active in obtaining supplies of herring and mackerel by way of "Klondiking" (as it is called**)— this mainly from the waters around Great Britain and Ireland.

Trade with Poland is complicated furthermore by reason of the country's currency problems. Accordingly imports must often be arranged by "barter trading" or over-the-side sales. In a few places there are joint venture companies set up to obtain access to fisheries resources. Poland has such agreements with USA, Canada, UK, and Ireland. In these areas the Polish factory ships are utilized to receive and process catches taken by home-nation fishermen. As with the Soviets, all such transactions go through a state agency: RYBEX.

On account of major problems with exchange, RYBEX is supposed in principle to be self-financing; that is, fish exports cover the costs of imports. If direct purchase is to be undertaken the Polish Finance- and External Affairs departments must be in the picture. Their priorities settle the matter.

Herring will continue to be of great interest to the Poles. According to Norwegian Fresh and Frozen Herring Ltd., the market for herring is said to be almost unlimited, but is in fact limited by lack of exchange currency. The need for salt herring was given at a minimum of a half million tonnes p.a. Norway has in recent years delivered very small quantities of fish or herring to Poland. In 1982 there was no export of herring to Poland, while in 1983 deliveries were 50 tonnes of frozen large herring and 387 tonnes of frozen North Sea herring. Both these quantities were delivered at approximately NOK 3.10 f.o.b. As of 30.11.1984 Norway has delivered 1,282 tonnes to Poland.

** That is, setting out specifically for over-the-rail purchases.

5.4.3 Czechoslovakia

Czechoslovakia is another country with an import structure matching those of the Soviet Union and Poland; that is, the state agency **Koospol** manages all activity in this connection.

The country currently imports only about 2,000 tonnes of round herring and about 1,000 — 1,200 tonnes herring fillets annually, distributed among many supplier nations. **Iceland** has probably a dominating position in this area, with annually recorded exports of about 1,000 tonnes according to export statistics.

By comparison Norway had no relevant exports of herring in 1982, while in 1983 we managed to sell 195 tonnes of frozen large herring (price: NOK 3.36/ kg.) and 135 tonnes of frozen herring fillets (price: NOK 5.70/ kg.). In 1984 a contract was undertaken for 380 tonnes of fillets for the second half-year and 220 tonnes of round herring. Of the round herring quantity not all was delivered — a matter which had to do with low prices (NOK 3.35/ kg. delivered at Hamburg). As concerns herring size, the contracts are "liberal" — meaning that sizes from 4-9/ kg. are acceptable.

For 1985 it appears that in any case a contract for 200 tonnes of fillets is in the works. This suggests that Norway now can manage to develop a stable relation with respect to such herring deliveries. This may prove to be rather important later on as prices for herring go lower and lower, an eventuality which again may lead to increased use of herring in Czechoslovakia at the expense of mackerel.

5.4.4 East Germany

This is a country of about 17 million inhabitants, and the consumption of fish is listed at 6.5 kg. per capita annually. Earlier this figure was 10 kg., and the short-term goal is 7.5 kg.

To cover some of the need for herring the country bought considerable amounts in the last 4 years. For example, East Germany bought round salted herring in 1982 worth 1.9 Million Canadian dollars **in addition to** over-the-side sales from Canadian fishermen. The same year 24,000 tonnes of mackerel were also bought from Great Britain.

Norwegian exports to East Germany have been more modest: in 1984 a contract was made for sale of 1,000 tonnes of frozen herring, at NOK 2.75/ kg. c.i.f. With NOK 0.40 in freight + 0.05 in handling costs this corresponds to about NOK 2.30/ kg. f.o.b. Given these prices the contract was not fulfilled, and in total the delivery was only about 800 tonnes.

According to Norwegian Fresh and Frozen Herring Ltd. deliveries of 50% more than contracted would have been possible at the prices given.

The importing agency FISCHIMPEX must finance its imports itself by exporting, and is accordingly interested in barter dealing.

East Germany, which after all has a considerable fleet of its own, is also particularly interested in buying over-the-side from Norwegian fishing vessels.

5.4.5 Other East European countries

In countries like Rumania and Bulgaria mackerel have a strong position among saltwater fish. Hungary imports a little herring, of which Denmark is the main purveyor.

In a period of competitive prices for herring in relation to mackerel on the world market the possibility arises that these countries may also show greater interest in importing herring. Norway should have good chances, for example with cheap North Sea herring, if this works out.

5.5 Japan

Japan has 120 million inhabitants, 12 million of them in Tokyo and 5.5 million in Hokkaido. Apart from being the world's foremost fishing nation (11.2 million tonnes in 1983), Japan is also the world's foremost fish-consuming nation, coming close to 70 kg. per capita p.a.

5.5.1 Japanese herring catches

Japan, like Norway, has experienced a wholesale failure in its supply of raw materials. At the start of this century there were 670,000 tonnes landed, while by the 1950s the figure had fallen to 150,000 tonnes, with a tentative nadir of 7,000 tonnes in 1978.

This reduction in catches is owing to two conditions: Japan was closed out of the fishery in the Sea of Okhotsk, which according to the new Law of the Sea belongs to the Soviet Union. Further there has been overfishing of the local herring stocks around Hokkaido, with sharply reduced catches in consequence. Neither is there any expectation of a quick rebound in Japan's herring resources. For the time being the country is therefore largely dependent on imports to cover domestic demands for consumer herring.

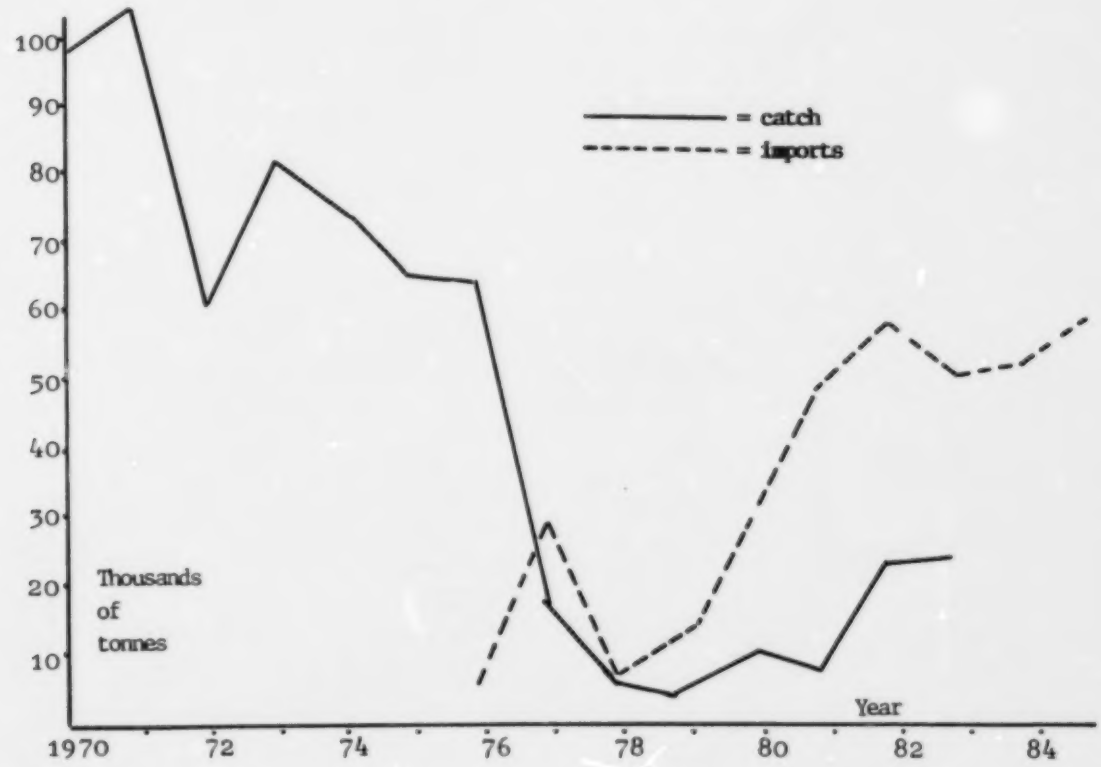

Figure 9: **Japanese catches of herring 1970—1984, together with imports of herring 1976—1983.**

There are three primary components in Japan's herring supply: Own harvest, imports of frozen herring, and imports of roe herring where the roe is removed.

5.5.2 Imports of table herring

Importation of herring to Japan is controlled by import quotas. Up to 1980 this quota was fixed at 45,000 tonnes annually, but it was raised as a result of direct pressure from USA. From 1981 to 1985 the quota has been 54,000 tonnes annually. The quota is divided: half for the period 1st October—31st March, half for the period 1st April—30th September. From 1985 onward the full quota will be increased by 8,000 tonnes.

The qota system was originally set up to protect domestic fishermen and producers, and therefore the quotas are controlled by the "Hokkaido Federation of Fisheries Cooperative". 6,000 tonnes (1984) are distributed directly to the 25-30 trading firms, while the remainder is at the disposal of various producer organizations. These delegate their quotas in turn to the trading firms which manage the importation. The precondition for granting new quotas to importers is that they first use the quotas they have already been awarded. The competition for such import quotas is keen, but since the system is built upon awarding shares on the basis of earlier quotas, the system operates conservatively. The conclusion must be that importing and marketing herring has been highly profitable, possibly owing to market demand exceeding the quantities for which import quotas are granted.

Canada and USA dominated as export countries until 1982. Nevertheless imports from Canada were sharply reduced (as of 31/8/84 they had a market share of around 5% as against 47% in 1981), while Norway has had a remarkable growth since 1982, the first year of exporting to Japan. As of 9/7/85 Norwegian exports of table herring reached 14,650 tonnes, meaning that we are a clear Number Two after USA.

The Netherlands have also increased their exports of herring, reaching close to 5,000 tonnes in 1984. This is herring which is frozen onboard in blocks at 18-20 kg., supplied for a special purpose (drying). The price is rather low: NOK 5.23 and 4.28 c.i.f. in 1982 and 1982 as against Norwegian herring NOK 7.31 and 7.14 c.i.f. the same years. It must be concluded therefore that regular Norwegian herring cannot compete

for price with Dutch herring of this kind. This market niche should be studied more closely with an eye to a future Norwegian fat herring fishery.

Table 21:
Imports of frozen herring 1981—1984*
Specified by exporting country

	1981	1982	1983	1984*
South Korea	224	-	60	-
North Korea	188	503	636	201
Iceland	-	300	462	317
Norway	-	8	470	7,062
Sweden	499	37	371	691
Denmark	-	19	49	14
Great Britain	-	410	-	-
Ireland	-	19	33	274
Netherlands	2,914	2,632	3,880	4,583
France	-	-	6	-
Canada	23,452	23,141	9,082	2,250
USA	22,343	30,973	38,084	26,967
USSR	269	1,769	-	-
Other	229	106	35	-
TOTALS	50,118	59,917	53.168	42,359

* Exports per 31/6/84.
Total Norwegian exports of frozen herring in 1984 were 11,255 tonnes.
Source: Japan Export and Imports, Japan Tariff Association.

The decline in Canadian exports must be seen in connection with the introduction of limits on permission to export round, unprocessed Pacific herring to Japan (as opposed to USA), the demand being instead that removal of roe take place in Canada. Since roe is the main item where Pacific herring is concerned, the herring itself accordingly stays behind in Canada. The herring goes either to reduction or is thrown out.

5.5.3 Imports of herring roe

The importation and consumption of herring roe by the Japanese is at once unique and of great interest from a marketing standpoint. In 1983 there were approximately 13,000 tonnes consumed. Of this about 10,000 tonnes was kazunoko roe, i.e., whole pickled roe sacs, produced from mature roe herring.

Kazunoko is an expensive product, which is eaten for the most part around Christmas and the New Year, that is to say, in the "gift season", and it is mainly the elder segment of the population which favours the product. Consumption levels are stable, with no increases expected in the near future. In respect of price the market is decidedly risky. The quantity demanded is price elastic with price elasticity around -1. Since this is a luxury product which must be bought in as much as 9 months in advance of sales, it follows that small changes for example in left-over supply can affect prices. Accurate price predictions are accordingly difficult to make.

Prices to the consumer are very high, and price sensitivity is evident. The Japanese housewife is unwilling to pay more than 10,000 Yen per kg. (NOK 343.-) and only the very best quality items of known name-brands broke that price barrier in 1984.

From Alaska, British Columbia, and California annually about 7,000—8,000 tonnes of roe are imported in the form of salted roe sacs in plastic kegs of 50—60 lbs. filled with brine. The transportation is in containers maintaining a temperature of + 5°C.

In addition, a quantity of thawed roe is extracted from round herring harvested in surrounding countries: South Korea, China, and Taiwan. This procedure is undertaken essentially to get around quota restrictions for round herring to Japan. Production cost levels are considerably lower in these countries, and apart from that the country of production keeps the milt herring or female after extracting the roe, so that the Japanese herring quota itself is untouched.

Additionally, kazunoko is produced from thawed round herring received from Alaska, British Columbia, and California under quotas. This production takes place in Hokkaido, where labour is cheap, around NOK 19.- per hour. The herring is only about 70% thawed, then the belly

is manually cut open and the roe taken out. Milt herring is separated out uncut.

It has been found that herring roe from the Pacific (USA's west coast including Alaska, and Canada's west coast) are best suited for kazunoko production. Herring roe from Atlantic herring is said to be too soft and lacking in the necessary consistency and "crispness" for production of kazunoko. Trials with Swedish roe herring from the Baltic have nevertheless shown good results.

An upgrading of Norwegian herring roe may be achieved with the development of possible additives which could yield a simulated kazunoko quality, such that the roe could be made more "crisp" via artificial processing methods. This is a project already initiated by FTFI [Tromsø].

Table 22:
Imports of salted herring roe 1980-1984
Weight in tonnes
Note: 13.1% duty

	1981	1982	1983	1983 price/ kg.*
South Korea	1,007	731	336	124
North Korea	25	66	190	284
China	469	399	916	120
Norway	0.2	0.3	-	-
Sweden	-	0.1	3	-
Denmark	-	9	144	16
Netherlands	0.4	0.4		
Finland	10	39	68	48
USSR	180	27	76	82
Canada	4,185	4,722	5,639	114
USA	1,768	1,501	1,246	123
Other	-	-	11	-
TOTAL AMOUNTS	7,645	7,497	8,628	[TONNES]
C.I.F. VALUE	23,968	27,695	31,282	[MILLIONS OF YEN]
MEAN PRICE/ kg.	82.07	96.45	112.00	[NOK]

* NOK/ kg. on c.i.f. basis.
Source: Export and Imports, Japan Tariff Association, 1981-1983.

It has not been possible to obtain complete statistics for 1984, but according to the periodical **Pacific Fishing** there was a decline of 17% from 1983 to 1984 with respect to imports of Pacific roe. This probably was owing strictly to lower catches on the Pacific coast.

Other products.

While kazunoko has been known for a great many years, in the past 5-7 years a market has developed for herring roe originating on the Canadian east coast and European waters. For the time being it is a matter of 2,000—3,000 tonnes annually; and this is a growing market, as the product is eaten the year around and is appreciably less expensive than kazunoko. It is accordingly often younger individuals who eat this roe, which consists of roe fragments (broken sacs), loose roe artificially formed to imitate kazunoko, etc.

This roe is less "crispy", has softer eggs, and is often darker in colour than kazunoko. The roe is used as garnishing for other main dishes, or appears on its own as the main dish mixed with rice, kelp, sea wrack, other fish sorts, sauces, etc. **It is here Norwegian roe has its best chance to take a market share.**

Manual production of mature roe in whole sacs from fresh herring will yield modest quantities in Norway owing to very short production periods. An optical sex-sorting machine for herring has now been fully developed by FIFI. Freezing of sorted female herring with mature roe, for later thawing and extraction of the roe sacs, would facilitate increasing our capacity. There should be an alternative in mechanical production of frozen loose roe following the same principle as for capelin roe, if possible after sex sorting. Rinsing must be done in salt water. Furthermore, production of loose roe as a bye-product of herring filleting would be realistic.

Japan already imports 1,500/2,000 tonnes of frozen herring roe, especially from the Canadian east coast and from Europe. The prices for roe from Eastern Canada in August/September 1984 were:

Second quality: ca. NOK 60.- per kg. (< 25% broken)
Third quality: ca. NOK 48.- per kg. (< 50% broken)
Fourth quality: ca. NOK 8.75 per kg. (immature roe)

This roe is packed in [10 X 5 lbs. =] 50 lbs. outer cartons.

Table 23:
Japanese imports of frozen herring roe 1981-1983
Tonnes of product weight

	1981	1982	1983	1984
Denmark	-	8	5	
U.K.	-	1	-	
Ireland	-	73	169	
Netherlands	-	4	6	
Finland	27	30	40	
Canada	438	940	1,492	ca. 2,000
USA	0.3	0.5	2	
Other	-	-	0.4	
TOTALS:	466	1,059	1,716	CA. 3,000
MEAN PRICE/ kg.	36	48	41	[NOK/ kg. C.I.F.]

* Prices recalculated from Japanese Yen on the basis of mean exchange values for the relevant years.

Canada is the major purveyor of frozen roe, with a market share of fully 87% in 1983. Frozen roe is preponderantly from Atlantic herring. Even though Atlantic roe according to Japanese cannot compete with roe from the Pacific, there are nevertheless signs that roe is being used to a greater extent, and it is expected that increased offering of Atlantic roe may put downward pressure on prices for the whole roe market. The Americans in particular are afraid of what may happen with increased stocks in the Sea of Okhotsk (Pacific herring), and with a steadily growing Norwegian stock.

Capelin roe, which has an annual market of approximately 4,500—5,000 tonnes, was introduced on a trial basis in 1983 as a kazunoko substitute — artificial kazunoko sacs were formed. This seems not to have succeeded very well, but capelin roe is reckoned to have established a niche of its own on the market.

A specialty product is "roe on kelp", which is to say, herring roe clinging to kelp and sea wrack. Along the Pacific coast and in Alaska herring spawn on seaweed along the beaches, covering the plants with roe. These plants with the roe are harvested and exported to Japan where they are sold as an expensive delicacy. The thicker the layer of

roe, the higher the price. A sample price in a retail store in Tokyo in March 1985: for 1 cm. thick layer of roe on seaweed, Y 20,000 [= NOK 687.-/ kg.].

Norwegian herring spawns in deeper water and in the judgement of the Japanese has not the same clinging quality as the pacific roe. Nevertheless it would be quite interesting if one could develop a clinging method so that artificial "roe on kelp" could be exported from Norway. This part of the market is expected to be growing in the years ahead.

Table 24:
Japanese imports of "roe on kelp" 1981—1983
Tonnes of product weight

	1981	1982	1983	1983 price [NOK/ kg.]*
Canada	172	180	213	169
USA	211	282	293	46
TOTALS	**383**	**462**	**506**	**98**

* C.i.f. basis, recalculated from Japanese Yen.
Source: Export and Imports, Japan Tariff Association, 1981—1983.

5.5.4 Norwegian export potentials

In three years Japan has become one of the absolutely most important markets for exported Norwegian consumer herring. With nearly 15,000 tonnes exported as of July 1985, this is considerably over the next on the list: West Germany and Denmark. Also with respect to profitability, for the time being there is no other market which can touch the margins realized so far.

Norwegian Spring-spawning herring has achieved a leading position in the food-herring market in Japan: primarily because of size, but also because we have been in position to supply the q[illegible] which is demanded. A certain stagnation in USA (and decline in Can[illegible]) offer the hope of an even greater potential for Norwegian herring. It is possible sales of 20,000 tonnes will be reached in 1985/86. The fact that we now will also be in position to deliver sex-sorted herring in addition could tangibly raise export values as well.

As concerns herring roe there seem to be a variety of possibilities for production and sales. For the near future the following suggestions may be offered:

<1> "Kazunoko", i.e. ready salted roe sacs after the Pacific pattern, but in modest quantities.

<2> Frozen loose roe, extracted as bye-product from herring fillets when the herring is as mature as possible: this also within relatively modest dimensions.

<3> Frozen loose roe, extracted after sex-sorting before the herring goes to feed meal reduction. With automation the quantities here probably could be substantial.

With the resources we have, both as to raw materials, the fishery sector, processing, export marketing, and with good support from research institutions, we should be able to stand up well-armed to meet the "Japanese challenge".

5.6 Other, new markets for herring

Norway exports herring to a long list of countries apart from those which have been mentioned. When it comes to canned and smoked herring, these are exported to the four corners of the earth: for example, South Africa is the major buyer of canned herring, while the French Antilles are the major buyer of smoked herring. What these markets have in common, however, is that they are modest in quantity, where the use of herring in the daily diet is limited to special ethnic groups (for example European colonials in the Pacific), and where the buying power is weak. Therefore no quick growth in these markets can be expected even if the supply in Norway were to grow. In all probability there is the production capacity in place both for canned and smoked herring in Norway to cover the niches which exist for these manufactured herring products.

To this point we have treated existing markets, where Norway (with the exception of Japan) has "traditions" of herring export. The exception is Japan. But other countries as well where we lack traditions ought to be worth considering as future possible customers. Starting with the positive development of exports to Japan we think first and foremost of countries in the Orient.

South Korea has a relatively limited consumption of food herring, but has shown great interest in Norwegian winter herring. Exports have risen from 28 tonnes in 1982 to 1,200 tonnes as of August 1985. This is a notable market expansion and with a deliberate effort here Norway should be able to take a dominating position as purveyor.

China with its enormous population will be of great interest. Even if only sections of the population along the coastline are familiar with herring as food, this amounts in rough figures to 400 million people! The Chinese are primarily interested in roe herring, where the roe is exported to Japan. In this way the Chinese count on being able to finance the purchase of "expensive food" — which herring from Norway would be.

Also other countries in the Orient as for example Taiwan and Singapore will be potential markets. Like China, South Korea and Taiwan are interested in large herring, preferably with roe. Each of these countries has traditions of roe-extraction for re-export to Japan.

In our estimation all these countries in the Orient are most interesting for the Norwegian consumer herring industry, both because volumes and values can be substantial in the future (Japan is **already** a key market), and also because several of these markets prefer large herring, where Norwegian winter herring will have a clear advantage in conparison with several major rival countries. Here it will be quite important to have a co-ordinated effort where a full overview is achieved of the way these markets work with respect to volume, price, quality, import structures, etc.

USA is well known as a market for frozen fish from Norway, but little regarded as a herring market, with the exception of herring and brisling in form of canned products.

Ocean food consumption in USA is 13.6 lbs (6.2 kg.) per capita. This is an increase of 0.8 lbs since 1980. The consumption was constant through the 1970s. Of this consumption 1.3 lbs. is canned ocean products, and 0.3 lbs. conserved wares. Herring is mainly used in canned or conserved forms.

Pacific herring is for the most part exported to Japan as roe herring. Very little appears on the consumer market, and what is not exported goes to bait and animal feed.

Atlantic herring is taken mainly for consumption — as a canned product, as frozen fillets, and as herring in brine. The landings occur in Maine and Massachusetts.

Herring is sold in three varieties in USA. In the supermarkets' canned food sections one finds small herring and sardines, at the fresh-food counters large herring appears as a smoked product, and in the delicatessen section it appears as herring in a brine medium of wine, vinegar, or sauces.

In volume most herring is consumed as a canned product, but this market is shrinking inasmuch as Americans eat less canned fish every year. For example, today's consumption of canned sardines is less than half of the consumption as of 10 years ago. Tinned kippers are sold as well. Canada and Norway are leading purveyors.

Herring put up in one or another form in vinegar brine is another common, but limited market for herring in USA. In USA it has been hard to obtain quality herring as a fresh or frozen product. That herring which is sold is predominantly imported, either IQF or frozen in small blocks.

USA should be an interesting market for Norwegian herring products: not least because there also will be the opportunity to export manufactured goods without (or with only a small) duty levied. Salt herring in bulk or container, conserved herring in glass or jar without oil, herring in brine (non-hermetic can/glass) and heavily smoked herring are not dutiable. For lightly smoked herring the duty is $ 0.07/lb.

If the Norwegian industry is to move into the USA to an extent that can have economic meaning, a broad, authentic programme must be established. The enormous market which USA represents, with 230 million consumers, of which 120 million live along the east and west coasts, cannot be entered without great resources. The market will mainly be the Northwest Coast and the Middle Atlantic/New England states. Few Norwegian firms have the resources to market "Norwegian herring" as an authentic quality product.

Chapter 6: Perils & possibilities pertaining to diverse market strategies

In the foregoing discussion of market conditions we have given a sketch of the scope and structure of several major market countries. In this section we take up various perils and possibilities which the Norwegian herring industry faces in light of existing market conditions.

6.1 Co-operation as a strategy in the consumer herring industry

There are three main areas where co-operation among several firms can pay off:

1. Product development
2. Production
3. Marketing and sales

We have earlier described the possibilities for co-operation as regards product development. As concerns co-operation in production we will here focus on going more deeply into two points which have already been mentioned elsewhere, namely, possibilities for pursuing local co-operation among neighbouring plants, and co-operation in transporting products to export markets.

6.2 Regional concentrations in the consumer herring industry

Whenever several plants are located near each other they have possibilities for reaching a number of big-plant advantages (external economies of scale). Among important gains may be mentioned transport from the grounds (one boat delivers a full load distributed among several recipients), better possibilities for using offal since larger quantities give a better operational basis for waste-product utilization, (in certain cases) specialization, possibilities for more effective utilization of onward transportation to markets, and the possibility for more flexible utilization of production equipment, for example sharing the use of machines or doing contract production for each other. Having greater net professional competence in place offers synergy effects

through local competition and co-operation on product- or production development. Such a local concentration may also offer a considerable strengthening of one's hand in political negotiation, and in working through infrastructural facilities.

It is accordingly not necessary that all production should take place in only one plant or one enterprise when it comes to attaining big-plant advantages. It is the aggregate **organization** of production and the spatial **concentration** which is most important. But to attain this something is required of the firms, namely the will and the way to co-operate.

How close should the plants be to one another, then, to attain the advantages which have been sketched? It varies from factor to factor. It is best if the plants are in one place, and if not, then in any case so close that daily physical contact presents no problem. Today we already have a number of regional and local concentrations of plants in the branch, for example Maalöy, AAlesund, Kristiansund North, Svolvaer/ Skrova, Haugesund/ Karmöy, Egersund.

6.3 Co-operative possibilities in sales and marketing

To assure acceptable bargaining conditions the firms must have some kind of marketing set-up. The way sales are organized today, the selling and marketing functions are carried out within each separate firm, often with Management as the only sales personnel. A co-ordination of sales with other firms would mean that duplication of functions would be reduced. This would bring down total transaction costs for the industry as a whole.

Along with the choice of a strategy of co-ordination, to be sure, some costs will show up which do not belong to the transaction itself. This applies to co-ordinating production among the plants and distributing the potential profits. But these will probably be less than the savings made.

A co-ordination of sales work will also lead to a building up of competence in the sales organization. This is a result of potential division of labour — specialization within the sales field. The industry's firms today have a lean sales administration. This makes it impossible to divide the organization up into units each in position to

focus its work on a homogeneous sector on the buying- or the selling side. A sales group of reasonable size would make the organization flexible and in that way focus work on sectors selectively.

Another advantage which can be achieved through co-operation in sales would be the furthering of organizational change such as we have sketched here. The formation in this way of major divisions within the trading sector offers advantages not only with respect to building up competence, but also in the fields of "promotion" and keeping track of possible competitors.

A joint ordering of exports also makes it easier to push into new markets. Separately the processing firms are small, and the resources at the disposal of each one are hardly enough to establish the firm in a new market and develop it. A sales group can for example solve these problems in a satisfactory way. One could expect at least that it would command sufficient resources that work on new markets could take place in a meaningful way. Furthermore, certain indivisibility problems[1] for the separate firms are eased, so the individual firms can partake in several marketing projects. This reduces risk for processing plants. A purely sales-oriented group would further have the advantage that there are many suppliers behind it, able to stand as guarantors of continuity of delivery to potential new customers in case this is demanded.

The value of such a strategy can best be judged against the fact that this has already been put into practice by several competitor countries. For example, the 17 biggest herring producers/ exporters in Holland have already joined together in a common sales organ ("The Group") with the aim of developing new markets (Japan, the Orient) by political and other means.

In Norway too we have such amalgamations (Norwegian Fresh and Frozen Herring Ltd.). But as of today such amalgamations are mainly directed to markets where one has to deal with centralized export (East Europe, China) and so far they have been little used in other connections.

The structure of the branch has been described here as comprizing many small processing plants. This description should be modified a

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[1] The fact that limited economic resources force a firm to put all its effort into one project, with the risk this entails.

little in that within the industry we also find a few enterprises of comparatively greater size. These have a marketing apparatus which is reasonably well built up, in some cases having unused capacity. Here everything favours the realization of the advantages which we have stressed in the setting up of one´s own sales group. In practice what one does is undertake a division of labour, letting those who are relatively better at producing do that, while they hire the use of other firms´ marketing apparatus.

What has up to this point been described in this section is how herring processing plants can improve their situation given the current market structure. It should also be clear that a widespread co-operative movement on the export side would in all probability make possible a shift in structure toward a more oligopolistic market. This should theoretically offer possibilities for taking out bigger profits. Even if the structure of the market remained uninfluenced by a co-ordination of Norwegian exports, it is most likely that the power structure in the channels of distribution can be changed. A co-ordination on the sales side in Norway would make it possible to develop a more "administered" kind of channel with the Norwegian sales group as leader.

The purpose of this section has not been to argue for a complete centralization of exports but to describe the advantages of co-operation on the sales side. Centralization is the most extreme of many possibilities, but not necessarily the best.

6.4 Transportation factors

The biggest markets for Norwegian herring are EEC and Japan. Inside EEC it is West Germany and Denmark which dominate. Since these markets are steadily increasing their purchase of fresh wares, a market-oriented location becomes very important for this kind of ware. The demand is for rapid delivery with minimal transportation costs in relation to industry competion.

Compared to USA and Canada the Norwegian industry has advantages of geography. This shows up for instance in that USA and Canada have more and more fallen out of the West European market. Against that, the Norwegian industry has geographic disadvantages in relation to the main competition — Denmark and Sweden — on the European fresh fish market. Swedish herring fishermen deliver to a great degree directly to Danish

harbours, where Danish processing plants produce half-manufactured goods ("fillets") which are sold further to the German industry. The Danish industry on its part has major geographic advantages, both of the sheerly physical kind and through its closer co-operation with German industry. Once the German industry had gone over, for the most part, to using fresh raw material, they have become accustomed to making contracts on a 24-hour basis. For trade with Norway this presents problems: the ware must be sold before it is packed. That is, the German processors must buy the raw material 2-3 days before it will be used. This entails bigger risks for them than do purchases from Denmark or other nearby countries. This situation can have a negative effect on the price of Norwegian herring (cf. Hubsch 1984).

The farther north one moves in the country, the more difficult it becomes to get to the fresh fish markets of Europe. The transportation time from Trøndelag and west-coast ports is about the same, about 1.5—2 days. Freight costs for such transportation will vary between NOK 0.75—0.95/ kg. according to utilization of trailer capacity. From North Norway it would be difficult to get under NOK 1.-/ kg. in freight — it could go up to NOK 1.10—1.20/ kg. By comparison it costs between DKK 0.35—0.40/ kg. to send herring from Hirtsdal in Denmark to Hamburg, while the cost to the Netherlands is around DKK 0.50.

The only way the Norwegian industry can balance off this comparative disadvantage is through access to correspondingly cheaper raw material. This perhaps with the exception of the period January—March when the fishery in the North Sea is at a reduced level.

6.5 "Downstream activities"

This jargon expression can be defined as "spreading down the production chain". To put it another way: Is there anything to be gained for the Norwegian consumer herring industry by spreading itself farther forward along the production chain, i.e. nearer to the final consumer?

Traditionally Norwegian herring exports have been deliveries of raw material and half-manufactured goods to foreign processing industries, and this will for the foreseeable future be the most practical arrangement for most exporters. The strategy offers limited leeway. One must adjust to the situation of distant markets, and so has

little directional control over distribution. On the other hand, this is a simple kind of export. It sets minimal demands on organization and marketing effort, and is accordingly suitable for small and resource-weak firms. In other words it accords with existing structural conditions in the Norwegian herring industry.

What then of Norwegian-managed production of finished products, for example in West Germany? The main aim of such a strategy must be to assure a more stable demand and price. In addition one gets closer to the market and gets better information on market conditions.

Finished herring products on the West German market can roughly be sorted into four main groups: whole canned, marinated, smoked, and salted products. 40 percent of herring raw material in West Germany is used in the production of whole canned herring portions. The production is spread among both big and small producers, but the market is dominated by just a few very big producers. The production technology is highly labour intensive, and earnings lie well below the mark for German industry more generally. It is accordingly mainly guest workers who are employed in the branch. The economic situation in the branch has been very strained for the past 4-5 years. High prices for raw materials and a buyers' market for herring, where the threat from substitutes has meant one could not compensate high raw material prices by raising prices on the retailing level, has ushered in low margins for earnings and a strained economy. Such limiting conditions would naturally face a Norwegian-owned firm in the business, and the preconditions for assuring sales of raw materials at better prices from the Norwegian mother plant would disappear. To survive in the internal competition in West Germany, for that matter, a Norwegian-owned firm would have to buy raw material at the right price and quality — regardless where the wares came from.

In 1984 the economic situation improved somewhat in the West German processing industry, with earnings gains of between 5-10 percent over the previous year. All the same one cannot conclude that a strategy for a Norwegian-owned further-processing industry abroad is in the cards today. To make it, several of the biggest units in Norway would have to join together on such a project. For such a strategy to yield notable results, one must go in with a relatively big plant — and no single Norwegian firm has the necessary economic base.

Production of further-processed products in Norway for the EEC market can quite simply be deemed untimely. Duty barriers in effect, and

comparative disadvantages with respect to wage levels and more, definitely put a damper on such a strategy. Institutional hindrances of this kind will be discussed in more detail in the next section.

6.6 Institutional hindrances

Now that we are once again allowed to catch Norwegian Spring-spawning herring, Norwegian producers and exporters have made a decided effort at steadily increasing the quantity and market share of Norwegian herring. Until now therefore all catches of Norwegian Spring-spawning herring have gone to the consumer market. This situation will change in the near future, perhaps even this year, both as a result of increased catches in the important market countries (EEC), and also by reason of institutional hindrances in important market countries such as duties/ excise taxes (EEC) and licenses/ import quotas (Japan).

The duty barriers in EEC were fully discussed earlier (Chapter 5.1.6). Briefly to take the matter up again: the suspensions of duties which EEC earlier granted for important product categories (fresh/ frozen round herring and herring 'fillets') are now falling away as the result of a growing North Sea stock. What remains is a GATT-linked duty-free period (15 February—14 June) and a duty-free quota of 34,000 tonnes. With direct sales from Swedish and Norwegian ships on the order of 15-20,000 tonnes landed in Danish harbours, there will not be large duty-free quotas left over for the Norwegian industry in competition with the Swedish.

This situation will become intensely serious for the Norwegian industry because it is so dependent on the EEC market. Recently a number of politicians and others have therefore called for Norwegian negotiations toward lower duties. However, there are signs that it will be difficult to achieve any such agreement. For it to happen one of the member-countries of EEC would have to suggest suspension and the rest of the countries agree. For the fisheries of EEC countries and their raw material producers such an easing of duties would stiffen competition and lower prices. The more herring is imported the more of one's own catch must go to meal and oil.

Inside EEC such a debate has been going on for a long time, and especially Ireland and Great Britain have put great pressure on the EEC commission to remove the EEC's unilateral duty adjustments. The EEC

ministerial council for fisheries affairs has also in talks with Norwegian branch people said plainly that further suspensions of duties on Herring "are absolutely not on the way". The way the situation looks today there would have to be potentially great concessions from the Norwegian side before new agreements could be entered, as for example concessions through agreements on agricultural products, fishing rights in Norwegian zones, and more. For our part we doubt that even this would avail, since the EEC system demands unanimous support for decisions to be approved.

Removal of the duties on ready-made herring products must be deemed unrealistic for now.

USA ought to be an interesting market for Norwegian herring producers: not least because it also ought to be feasible to export processed products without (or with small) duties being levied. Salt herring in bulk or in containers, canned herring in glass or jars without oil, herring in brine (non-airtight tins, glass) and heavily smoked herring are not dutiable. For lightly smoked herring the duty is $ 0.07/ lb.

If the Norwegian industry is to move into USA on a scale which can have economic meaning a joint programme ought to be undertaken. The enormous market which USA represents with 230 million consumers, whereof 120 live along the East and West Coasts, cannot be invaded without big resources. The market will mainly be the Northwest Coast and the Mid-Atlantic/New England states. Few Norwegian firms have the resources to market "Norwegian herring" as a genuine quality product. [2]

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[2] These two paragraphs appear as the conclusion of the previous chapter as well. In the Norwegian version the wording in each case is identical. Evidently the duplication was unintentional. [Translator's note.]

Chapter 7: Summary & conclusions

7.1 Plentiful supplies — market saturation can be anticipated

We anticipate substantial growth in stocks of Norwegian Spring-spawning herring. From 1987 we judge that the stocks will grow sharply as a result of the excellent 1983 cohort. At the same time there is very good growth of several other herring stocks in the North Sea, where Norway can expect to get a considerable portion of the catches. Both these conditions mean that Norwegian consumer herring will be quite competitive both with respect to quantity and alternative types of raw material. At the same time it is clear that an increased Norwegian offering of consumer herring will encounter tough competition on a market where the supply will definitely be bigger than the demand. For that reason there is already a sign that challenges to the industry will lie on the marketing side.

7.2 Markets

Traditionally, EEC has been a major market for Norwegian fish products. This includes herring, of which these countries took about 55% of the total Norwegian exports up to 1984. But because of the growth in North Sea stocks EEC is moving rapidly toward self-sufficiency. From the EEC perspective this is expected to be the case as early as 1986. Along with this there are obvious tendencies toward a protectionist stance toward imports from "third countries", a matter which will not least affect Norway's export possibilities.

Within EEC West Germany is by far the biggest single market, with over half the total consumption. The structure of the German processing industry means that fresh round herring and half-manufactured wares are preferred. This again means that proximity to the market will be an important factor in competition. The Danish industry here has a clear advantage, as their transportation costs are about half that of the Norwegian exporters. A substantial filleting capacity in Denmark is

exclusively based on re-export to West Germany — which for the nonce does not have the same capacity developed.

EEC's own processing industry enjoys extensive protection behind its own duty barriers. These make it very difficult for "third countries" to enter with processed products. Also for unprocessed and half-manufactured raw material there is a steadily smaller volume which can be exported duty free. This will set clear limits to further Norwegian expansion into the EEC market. Because of the decision-making structure of EEC we believe it is unlikely that Norway can secure a unilateral suspension of duties in the near future.

Good access to herring of varied types and sizes will probably put Norway in condition to maintain its relative position on the EEC market. The quality of Norwegian raw materials (seen in broad perspective) will be the most important competitive advantage.

Profitability in production will be limited.

Such conditions will clearly limit what expansion possibilities there are, and what kind of Norwegian industry can finally be developed.

7.3 East Europe

Several East European countries, especially the Soviet Union, have good traditions and great potential for the consumption of herring. Norway earlier had big exports of salt herring to the Soviet Union, but has not managed to take back that market. Overall the exports to East Europe comprized only 6% of total exports in 1984. Specialists in barter-trading are quite expensive (15-20% commissions). Our weak success in trade with East Europe is a sure sign that Norway lacks a strategy concerning the hidden potential for increased Norwegian exports to these countries.

Another special condition for East Europe is import organization. A central organ in each separate country takes charge of this. For that reason Norwegian exports are also centralized. Still it often proves necessary, especially in the starting phase, to "escalate" negotiations up to a high political level in order to get a final breakthrough for the prospective contracts. Accordingly from the Norwegian herring industry there is a call for the nation's political authorities to take a firmer

role in the negotiations. As an example it might be mentioned that our main competitor in the Soviet Union, Iceland, never travels to negotiate without a person of ministerial rank in the party. If we are to strengthen our position in East Europe, which will be of vital significance for continued expansion in Norwegian consumer herring exports, negotiatory strategies of this kind will have to be carried through more consistently.

A third feature of strategy toward East Europe is linked to conditions around direct sales (Klondiking) of fish to these countries' big factory-ship fleets. In both Great Britain and Canada such Klondiking is quite widespread, and assures a consumer application for raw material which otherwise would have been a problem to get on the market in West Europe.

In Canada they have managed to combine "over-the-side sales" with "over-the-wharf sales", i.e. a combination of direct sales to Russian factory ships and agreements on the purchase of processed herring, usually salted. In our view there is an opportunity lying here which ought to be assessed. Especially we have in mind possibilities for building up a consumer herring industry in North Norway and most particularly in Finnmark.

On the whole, a build-up of herring facilities in North Norway would be closely tied to a breakthrough for Norwegian exports to East Europe, given the way the market situation is taking shape today.

7.4 Japan and the other Asian markets

There are still growth possibilities on the Japanese market. Norway should have certain competitive advantages on the ground of herring size, together with the quality of the raw material. A development in the direction of more sex-sorted herring could further increase profitability for Norwegian producers. To this point only large herring have been exported to Japan. But there is much to indicate that fat herring also should be exportable to Japan.

The Japanese roe market is unique in size and also pays well. It is very sensitive to quality, however, and can show big price fluctuations, reflecting fluctuating shelf stocks. Norway should keep on

with its effort to adapt Norwegian herring roe to the Japanese market. The potential winnings in the event of success are very large.

The further markets in East Asia should be worked on, even though for now they are small. Yet we should be conscious of one point of peril associated with exports to China and South Korea. These countries can re-export herring roe to Japan, and in that way we can find ourselves indirectly in the position of spoiling our own export.

We recommend co-ordinated action on the East Asian markets. By this we do not intend there should be a centralized export to such markets, corresponding to that we see on the East European market. Especially for Japan there are big and well co-ordinated buyers. When the market hits a ceiling, we could easily find ourselves in the situation that Norwegian exporters vie to underbid one another, while trying to keep such underbidding hidden. The proposed stipend programme for persons prepared to study the Japanese markets seems to us an unusually positive initiative. The herring industry must be active here, so these persons will be taken on in the branch when they return.

7.5 USA — North America

North America as a whole (i.e. USA and Canada) is a net exporter of herring. But even though USA exports herring, a good deal of importing takes place as well. Most of this comes from Canada. USA can just the same be a fine potential market. In the first place, Norway is not burdened with heavy duties on this market. For another thing, there are large ethnic and regional ´niche markets´ to be found. Further, there is a trend toward increased consumption of fish in USA, in opposition to most world countries. The increase in the market for fish in USA appears mainly in the restaurant market, but may also spread to the ordinary housekeeping market. Fish is a mainstay of the health and fitness wave which is passing over USA, with cholesterol in other foods being understood as a health problem. We believe processed herring products should be able to take a profitable piece of the North American market.

7.6 The Norwegian domestic market, Sweden, and Finland

There are noteworthy differences in per capita consumption among the Scandinavian countries. On one side stands Norway, with an estimated consumption of 1-2 kg. per person per annum. On the other side stand Denmark, Sweden, and Finland all of which have a consumption of 7-10 kg. per annum. Failing supplies the past 15 years in Norway can perhaps explain some of the difference. But there should be a substantial potential associated with increasing Norwegian domestic sales of herring. Nor should we fail to note that a great deal of the herring which is consumed as a spread or in salads is imported from Denmark and Sweden.

As concerns our export to Sweden and Finland, we believe it will be difficult to enter with large quantities of finished products. This applies especially to Sweden, which itself has two large producers who export to Norway. We should, however, be able to realize the position of a stable and dominating supplier of raw material to the Swedish processing industry.

Finland is one of the markets where we have not had a notable decline in salt herring consumption, as elsewhere is the trend. Iceland has got a strong position in this market. So far as we can assess it, Iceland has no natural advantages which should dictate so strong a market position.

For Norway to enter the Finnish market, there are suggestions that sales activities should be co-ordinated in a different and better way than currently. The special Finnish monitoring of histamine content has also proved troublesome for some Norwegian exporters, who often lack both knowledge and the equipment for testing their exports. An official certification, for example through active use of the inspection department, should be introduced. Norwegian herring for Finland should in other words be deliverable with a histamine guarantee, even if many Norwegians feel the Finnish inspection standards are rather excessive. In general one should go by the rule that the customer decides what the product should be.

7.7 Little need for general expansion of capacity

The herring processing industry has already a considerable processing capacity for the markets which have been most important. We can scarcely see any special bottlenecks in the production of either frozen herring or fresh herring for the Continent. There will possibly be a shortage of particular types of machine, especially sorting equipment, but also in a lesser degree filleting equipment. Yet there is a great need for modernizing existing plants so that production costs can be reduced by more automated production.

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